

# *Permaculture Design Course*



*Jeanette Dubesa*

*Rosemont Urban Agriculture Project*

*9500 block of Kiefer Boulevard Sacramento, CA 95826*

# Personal Survey

**Age:**

47

**Educational background:**

I have a B.A. in Anthropology from UC Berkeley (graduated 1998). My focus was primate ecology. In 2017, I returned to school to pursue a post-bacc degree in Horticulture at Oregon State University.

**How did you hear about permaculture?:**

I first learned about permaculture design while taking OSU Course Hort 112 (Introduction to Horticultural Systems, Practices and Careers). I was immediately attracted to the holistic approach it takes to design.

**What is your background in gardening/farming/design?:**

I don't have any formal training, other than my completed coursework at OSU. However, I redesigned my backyard a few years ago. I took out dying trees, installed irrigation and drainage lines, planted trees and shrubs, installed a dry rock bed, and built a raised-bed garden. I also added two chicken coops. I refer to my backyard as my "living lab", and it is evolving as my skills and knowledge increase.

**How do you want to integrate permaculture into your life? (Highlight all that apply)**

I'm just curious.

I want to use it for personal design/installation.

I want to become a designer/installer.

I want to incorporate it into my existing work?

If so, what do you do?:

## *Personal Survey (cont.)*

### **What are your goals for the course?:**

My long term goal is to earn my Permaculture Design Certificate, and to start a local nonprofit that converts vacant lots to urban agriculture/education sites in underserved communities. The site I selected for this design is in my neighborhood, and has a lot of potential for urban agriculture. I want to come away from this course with a design I can propose to the County of Sacramento, who owns the parcel I'm designing.

### **What's success look like for you when the course ends? What will you know? What are you capable of?**

For me, success will be having the confidence to propose, design and implement a site using the skills I have learned in this course.

### **What level of interaction do you want to have with the course?: (Highlight one which applies)**

Observer – just browsing

Participant – looking at all material but not doing assignments

Designer – doing some assignments but not all

Master – completing all assignments, responding to feedback, and earning my certificate

### **What are your expectations of this course?**

I want this course to provide me with the knowledge and experience offered. In addition, I am a proponent of communication with the instructors and to be able to ask questions when I am unsure of a task.

# Climate Survey

## Sacramento, California

[Weather Report](#) · [Interactive Map](#) · [Extended Forecast](#) · [Hourly Forecast](#) · [Past Observations](#) · [Historic Averages](#)

Monthly Averages & Records - °F   °C						
Date	Average Low	Average High	Record Low	Record High	Average Precipitation	Average Snow
January	41°	55°	19° (1888)	75° (1994)	4.18"	NA
February	45°	62°	21° (1884)	80° (1985)	3.77"	NA
March	47°	67°	29° (1880)	90° (1988)	3.15"	NA
April	50°	74°	34° (1953)	98° (2004)	1.17"	NA
May	54°	82°	26° (1896)	107° (1984)	0.6"	NA
June	58°	89°	43° (1929)	112° (1934)	0.18"	NA
July	61°	94°	47° (1901)	114° (1925)	0.05"	NA
August	61°	93°	48° (1921)	111° (1933)	0.05"	NA
September	59°	89°	44° (1934)	109° (1955)	0.37"	NA
October	54°	79°	34° (1946)	102° (1987)	1"	NA
November	46°	64°	27° (1880)	86° (1966)	2.59"	NA
December	40°	55°	17° (1932)	72° (1979)	2.76"	NA

Source: USClimateData.com



## Climate Survey (cont.)

### FROST DATES FOR SACRAMENTO, CA

SHARE:

SEE FROST DATES FOR YOUR LOCATION

Sacramento, CA

Change

Nearest Climate Station	Altitude	Last Spring Frost	First Fall Frost	Growing Season
SACRAMENTO EXECUTIVE AP, CA	16'	Feb 21	Nov 26	277 days

Last and first frost dates are 30% probability. Calculated using 1981-2010 Climate Normals.

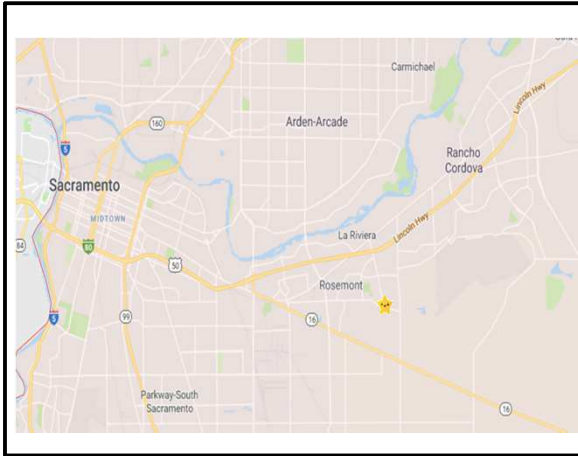
## Climate Survey (cont.)

# SACRAMENTO WEATHER BY MONTH // WEATHER AVERAGES

The variation in the precipitation between the driest and wettest months is 97 mm. The average temperatures vary during the year by 16.7 °C.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	7.4	10.3	12	14.7	18.3	21.9	24.1	23.7	22	17.8	11.7	7.5
Min. Temperature (°C)	3.3	5.2	6.1	7.7	10.2	13	14.4	14.3	13.2	10.1	6.1	3.3
Max. Temperature (°C)	11.6	15.5	17.9	21.8	26.5	30.8	33.9	33.2	30.8	25.5	17.4	11.7
Avg. Temperature (°F)	45.3	50.5	53.6	58.5	64.9	71.4	75.4	74.7	71.6	64.0	53.1	45.5
Min. Temperature (°F)	37.9	41.4	43.0	45.9	50.4	55.4	57.9	57.7	55.8	50.2	43.0	37.9
Max. Temperature (°F)	52.9	59.9	64.2	71.2	79.7	87.4	93.0	91.8	87.4	77.9	63.3	53.1
Precipitation / Rainfall (mm)	98	75	67	32	8	3	1	2	8	26	70	69

<https://en.climate-data.org/north-america/united-states-of-america/california/sacramento-1460/>



Address:  
9500 Block of Kiefer  
Blvd, Sacramento, CA  
95826

Coordinates:  
  
38.52°N  
121.5° W

6.4 Acres

Notes:



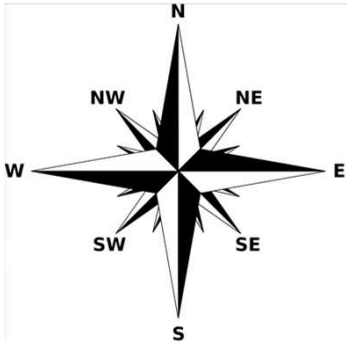
Rosemont Urban  
Agriculture Project

*Design Site*

Scale:  
80 160  
Scale 1" = 160'

**OSU PERMACULTURE DESIGN COURSE**

Date: 1/21/19



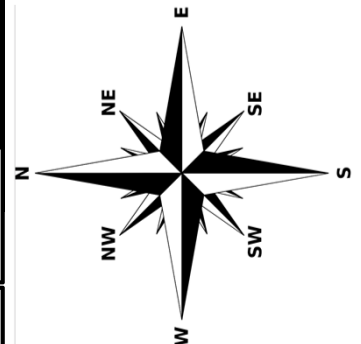




Notes:

Image 1: Photo taken from Mayhew Drive, facing east at sunrise.

Photo taken facing north, from Kiefer Boulevard.



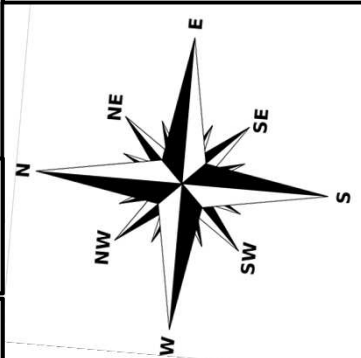
Rosemont Urban Agriculture Project	<i>Design Site</i>	Scale:
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date: 1/21/19	





Notes:

Next to the freestanding Juvenile Work Program building is a fenced off area with a small path leading to the building. This is what appears to be a small raised-bed agriculture project belong to the Work Project.



Rosemont Urban Agriculture Project	<i>Design Site (cont.)</i>	Scale:
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date: 1/21/19	





Image 1

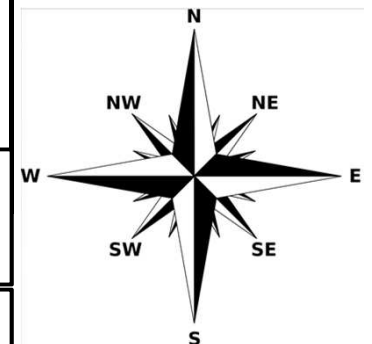


Image 2

Notes:

Image 1: Utility drain, located just north of center of site.

Image 2: View facing north. In the front is a section of hardpan covered in coarse gravel. Behind it, a mound of compacted dirt has formed, likely debris from previous use years ago.



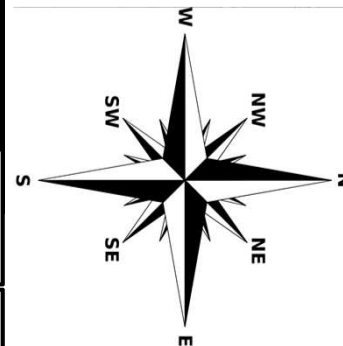
Rosemont Urban Agriculture Project	<i>Design Site (cont.)</i>	Scale:
<b>OSU PERMACULTURE DESIGN COURSE</b>		Date: 1/21/19





Notes:  
 Photo taken 1/19/19  
 from adjacent parking  
 lot.

This is the view facing  
 west toward Mayhew  
 Road.

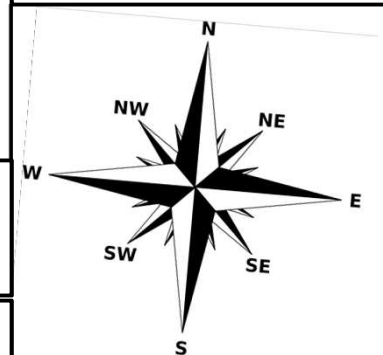


Rosemont Urban Agriculture Project	<i>Design Site (cont.)</i>	Scale:
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date: 1/21/19	



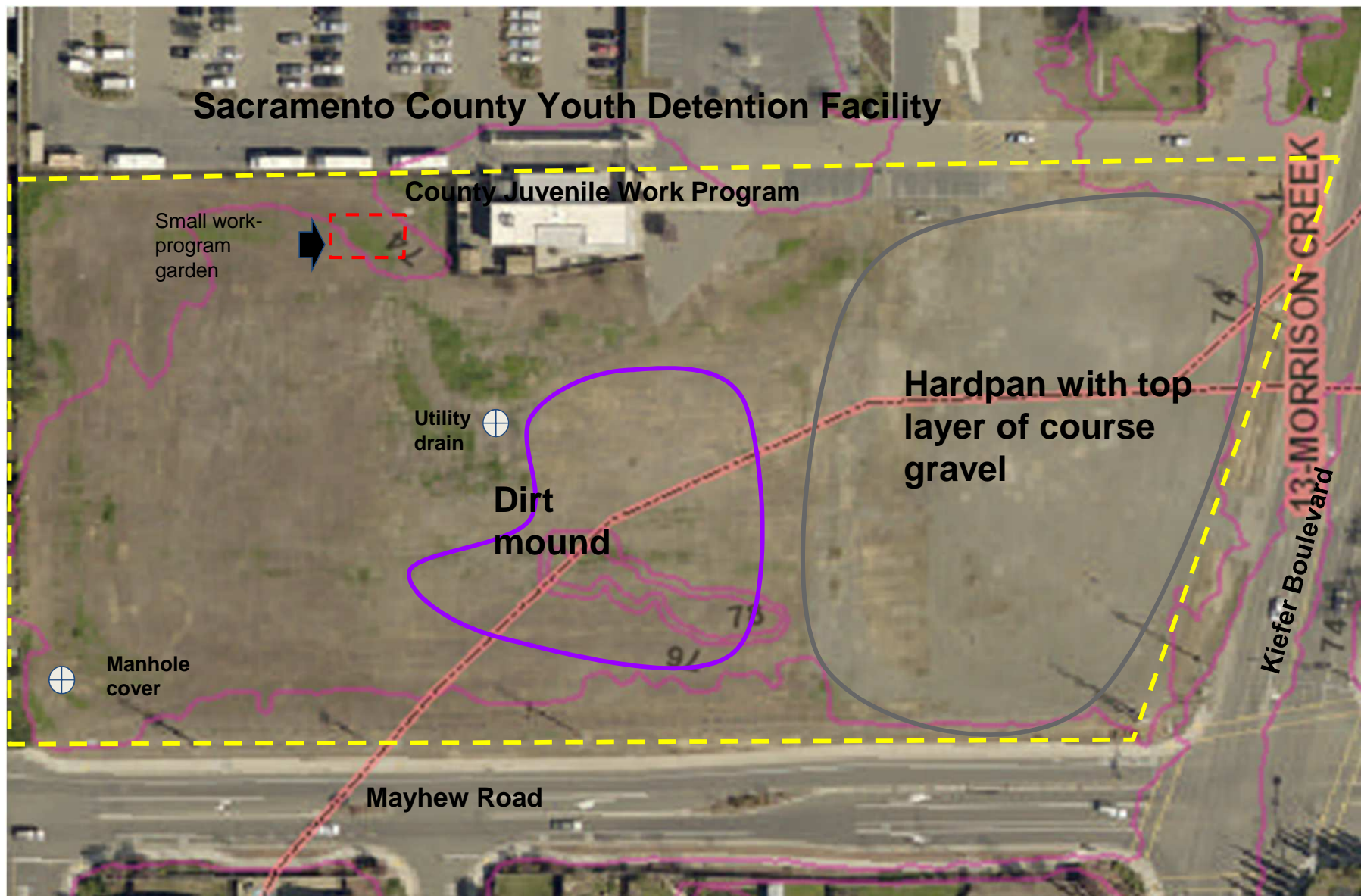


Notes:  
 Located on the  
 Northwest corner of the  
 site. I am unsure of what  
 this is for.



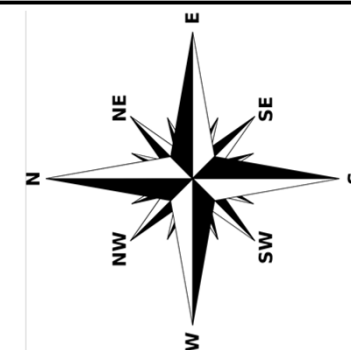
Rosemont Urban Agriculture Project	<i>Design Site (cont.)</i>	Scale:
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date:1/21/19	





# Key:

- Property Boundary
- Fencing
- Water Lines
- Water Flow
- Paths
- Vegetation
- Rock
- Underground Utility
- Overhead Utility
- Landscape Beds
- Other
- Other
- Other
- Other



Rosemont Urban  
Agriculture Project

*Base Map*

0 30 60  
Scale 1" = 60'

**OSU PERMACULTURE DESIGN COURSE**

Date: 1/21/19

# *Client Interview*

## **Client Profile**

### **Client Names and Ages:**

Jeanette Dubesa, 47

### **Property Owners Names and Ages:**

County of Sacramento, n/a

### **Your relationship to the Clients and to the owners (if different)?**

None

### **Client Occupations:**

Accounts Payable Specialist, GP Landscape

### **Amount of time available for maintaining property:**

Ongoing maintenance will be performed by volunteers, with client providing oversight.

### **Initial Budget for implementation:**

\$25,000

### **Who has the ability to make veto decisions for the site? (These are individuals that could approve or block a major change):**

County of Sacramento, Department of General Services

# *Client Interview (cont.)*

## **Client Profile (continued)**

### **What's the client's dream for the property?**

- To create a community farm that serves the residents of Rosemont.
- To partner with neighboring SCUSD schools in providing an educational program for k-12 students. This would include the following possible goals:
  - student-run local produce market stand.
  - farm-to-fork partnership with Rosemont High School Culinary Arts Program.
  - meal service for homebound seniors, at risk youth, and any Rosemont resident facing hunger issues).
  - field trips and volunteer service days for grades K-8.
- To partner with Sacramento County Department of Juvenile Services in providing education and work opportunities for at risk juveniles.
- To act as donation site and clearinghouse for backyard garden produce, which will be sorted, evaluated and distributed to local food banks and churches.

### **General Lifestyle (active, sedentary, lots of travel etc.):**

Active

### **Special requirements:**

My proposed design will need to have

### **Hobbies:**

Farming, tinkering

### **How long do residents plan to live at this site?**

There will be no residents at this site

# *Client Interview (cont.)*

## **Client's Desired Outcomes**

Water systems (What is existing supply, and future needs for domestic, agricultural, storage?)

- 1) Existing: There is currently a water supply that is connected to municipal fire hydrant. I'm still determining what, if any, other systems are currently onsite.
- 2) Desired: Food production is a primary goal of this site, so I will need access to water for irrigation, consumption and other general purposes.

Lighting: paths, buildings (existing and future needs)

- 1) Existing: Lighting consists of natural light during the day and overhead street lamps at night.
- 2) Desired: Increased lighting for evening events and security.

Structures: (What are existing and desired structures; i.e. house, greenhouse, shop, barns, chicken house etc.)

- 1) Existing: A small, fenced off structure exists on the east side of the site. This appears to be small scale agriculture coordinated by the juvenile facility.
- 2) Desired: A small, secure building for market sales, a small greenhouse, and a covered work area (for produce donations, sorting, etc)

Heating, cooling, electricity (What are existing sources and desired sources?)

- 1) Existing: n/a
- 2) Desired: Possible cold storage of surplus produce.

Utility areas: clothes line, recycle and trash, wood, service equipment (existing and future needs)

- 1) Existing: n/a
- 2) Desired: The site will require trash, recycling and green waste services (for anything that is not fit for composting).

Children's areas: (existing and future needs)

- 1) Existing: n/a
- 2) Desired: There will be a small section designated for visitors and field trips.

Level of food self-reliance (present and future): diet and taste preferences

- 1) Existing: n/a
- 2) Desired: Organic fruit and vegetable crops



## *Client Interview (cont.)*

### **Client's Desired Outcomes (continued)**

Does income need to be produced from the property?

- 1) Existing: n/a
- 2) Desired: Yes. While the farm will be run as a nonprofit, I do want the market stand to act as an income generator for the high school students who operate it.

Compost and recycling systems?

- 1) Existing: n/a
- 2) Desired: Yes. There will be an area devoted to the sorting, cleaning and distribution of donated harvests from residential backyard gardens. Unusable produce will be composted and feed to the soil.

Livestock

- 1) Existing: n/a
- 2) Desired: TBD (this will depend on security, fencing outcomes)

Pets

- 1) Existing: n/a
- 2) Desired: n/a

Wildlife enhancement

- 1) Existing: n/a
- 2) Desired: Installation of butterfly garden and other pollinator friendly plants.

Woodlot

- 1) Existing: n/a
- 2) Desired: n/a

Vehicles: (car/truck, farm equipment, recreational equip, Earth moving equipment or other heavy machinery?)

- 1) Existing: n/a
- 2) Desired: During installation, and possible limited access for hauling of materials

# *Client Interview (cont.)*

## **Summary**

### **What is the client's vision for the site?**

My vision for this site is that of an urban agriculture project in Rosemont, and unincorporated community in Sacramento County. This project will be involved in food production, education and outreach. I would like to partner with, or be under the advisement of, Soil Born Farms and/or the Center for Land Based Learning. These two organizations provide farm training and resources to urban farmers in the Sacramento area.

### **What are the challenges or limitations that the client has encountered on this site?**

My first pressing challenge is lack of available time. I work full time, carry 8 units at OSU, and I'm a single mom. But I persevere. Looking forward, I anticipate my challenges to be:

- a. Obtaining permission and lease agreement from the County of Sacramento for my intended use.
- b. Seeking and obtaining financial support for the installation and operation of the urban farm.
- c. Access to water source for irrigation.
- d. Securing the site against vandalism/theft.
- e. Soil remediation.

I include soil remediation here because of its potential cost. I have already completed soil analysis and tested for heavy metals.

### **What are your goals as the designer for this project?**

I want to be able to approach the County of Sacramento with a design that is detailed, forward thinking and incorporates all of my visions.

## *Site & Regional Challenges Survey*

**What are the three biggest cultural / social / economic challenges in your region? Explain.**

1. The Sacramento area is made up of several counties and cities, each with different zoning and regulatory policies. This means that there is no uniformity in terms of funding and approval of projects.
2. The population of the area is relatively diverse, and each neighborhood is trying to find its own identity. Rosemont is in an unincorporated part of Sacramento County, and sits between the cities of Sacramento and Rancho Cordova. It is the stepchild that no one cares about, unless you live there.
3. Public transportation is challenging. The Regional Transit system in the Sacramento area has never kept up with the sprawling development. There is one bus that goes down Kiefer Blvd., and it doesn't run frequently enough.

**What are the three biggest problems or weak links on your design site? (climate, water, access, vegetation, regulatory, interpersonal, etc)**

1. I do not yet have permission to use the site. I have been working with local urban agriculture groups who have a lot of experience working with land trusts and city/county municipalities on access and permitting. Before I make a formal proposal to the County, I must have a detailed proposal, including how it will be funded, and I will need to have the support of the community. I am a member of the Rosemont Community Association and will be making a pitch at our February 2019 Board meeting.

## *Site & Regional Challenges Survey (cont.)*

2. Getting access to water will also require obtaining permission from the County Youth Detention Facility to tap into their water supply.

### **What have been the obstacles thus far in resolving each of these problems?**

1. Technically, I am trespassing anytime I do a site visit. I have to ensure that my site visits and survey activities do not lead to any consequences by the County.
2. I am currently very limited on time. I work full-time, am in school part time, and I am a single mom of a daughter who has ADHD and requires a lot of my focus.

### **What's been the cost of these problems to date? (ecologically, financially, socially, other)**

1. I do not have any funding for this project yet, so my expenses have been out of pocket. Soil testing (composition and metals) has cost me about \$250.
2. I don't have time for a social life, so there's no real change there.

### **What are the most likely natural disasters to happen in your region?**

1. Although parts of the Sacramento area are prone to flooding, Rosemont is not part of the flood zone.
2. Parts of the Sacramento area are currently under an Oriental Fruit Fly Quarantine. This was originally anticipated to be in effect until May 2019, but if the pest is not eradicated, the quarantine could be extended.

<https://www.cdfa.ca.gov/plant/off/docs/regs/3423-TXT-off.pdf>

[https://maps.cdfa.ca.gov/QuarantineBoundaries/OFF/OFF\\_PQM\\_Overview.pdf](https://maps.cdfa.ca.gov/QuarantineBoundaries/OFF/OFF_PQM_Overview.pdf)



## *Site & Regional Challenges Survey (cont.)*

3. Heavy winter storms sometimes bring strong winds, which uproot trees, destroy fences and damage properties.

### **What are some strategies for resilience against those natural disasters?**

1. I would like to plant some trees that can act as strong windbreaks.
2. I would like to install a water catchment system along with low water-use irrigation.

**Closest Grocery Store:**  
Savemart - 1.2mi W

**Closest Population Center:**  
City of Sacramento (pop. 502,000); City of Rancho Cordova (pop. 73,563)

**Closest Fuel Station:**  
ARCO .6 mi ESE

**Nearby Stores:**  
Strip malls along Bradshaw Road, 1 mi N

**Closest Hospital:**  
Sutter Health, 7.1 mi WNW

**Closest Public Space:**  
Bradshaw Dog Park .5 mi N

Amplify

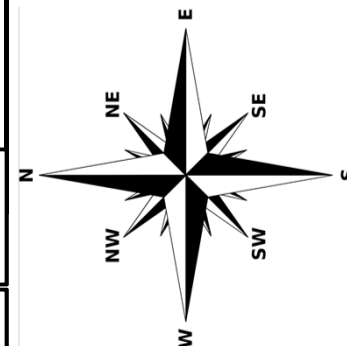
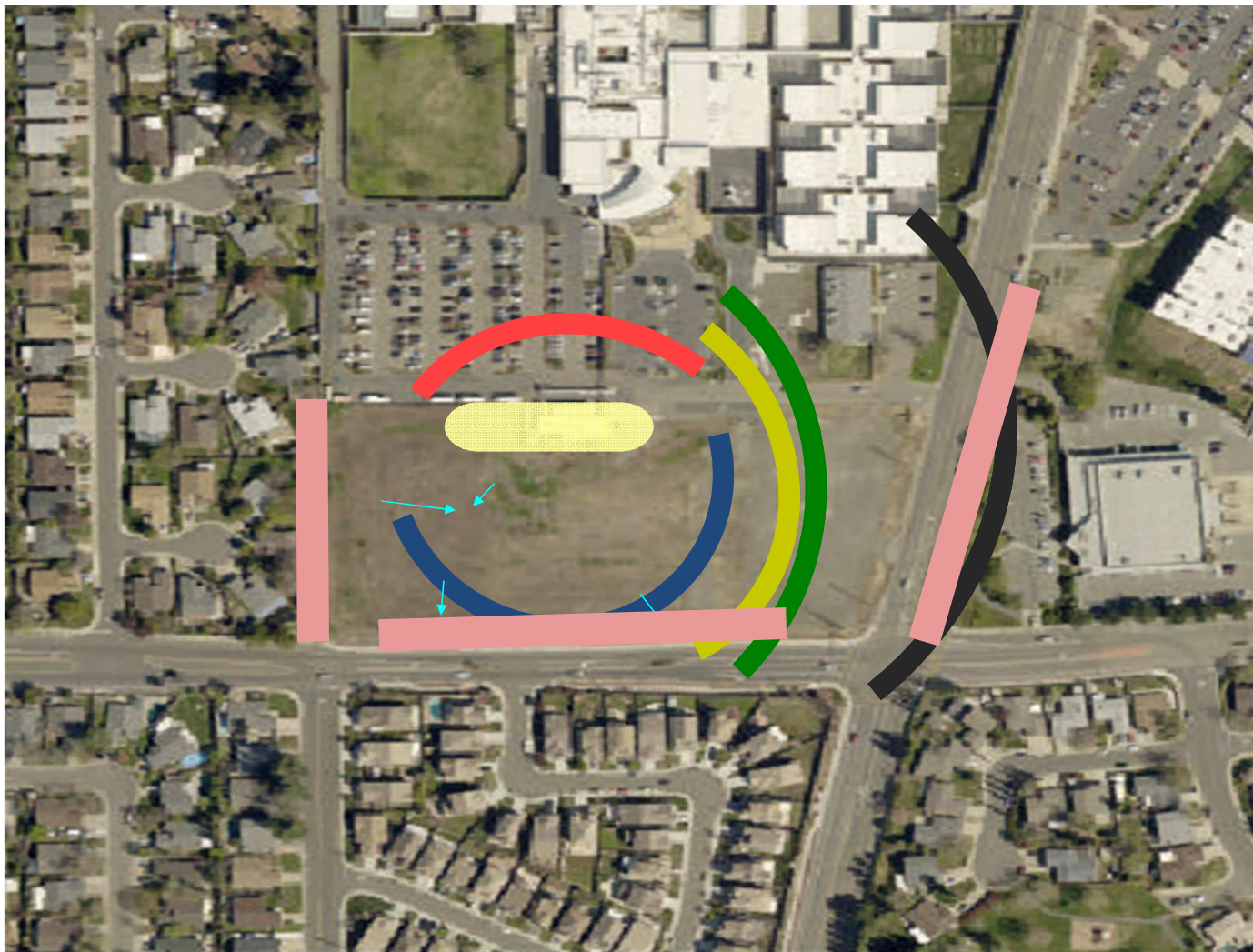
Deflect

Use

Narrative Explanation: (Use another slide if necessary).

Key:

- Warm Wind
- Fire
- Summer Sun
- Winter Sun
- Water Flow or Flooding
- Cold Wind
- Noise



Rosemont Urban  
Agriculture Project

*Sector Compass*

Scale: 80 160  
Scale 1" = 160'

**OSU PERMACULTURE DESIGN COURSE**

Date: 1/28/2018

# *Sector Compass Narrative Explanation*

Amplify: None.

Deflect:

South: The site is located at a corner of an intersection that, while not overly busy, does contribute some vehicle pollution. I would like to deflect the incoming pollutants without losing the benefits of the sunlight coming from the south.

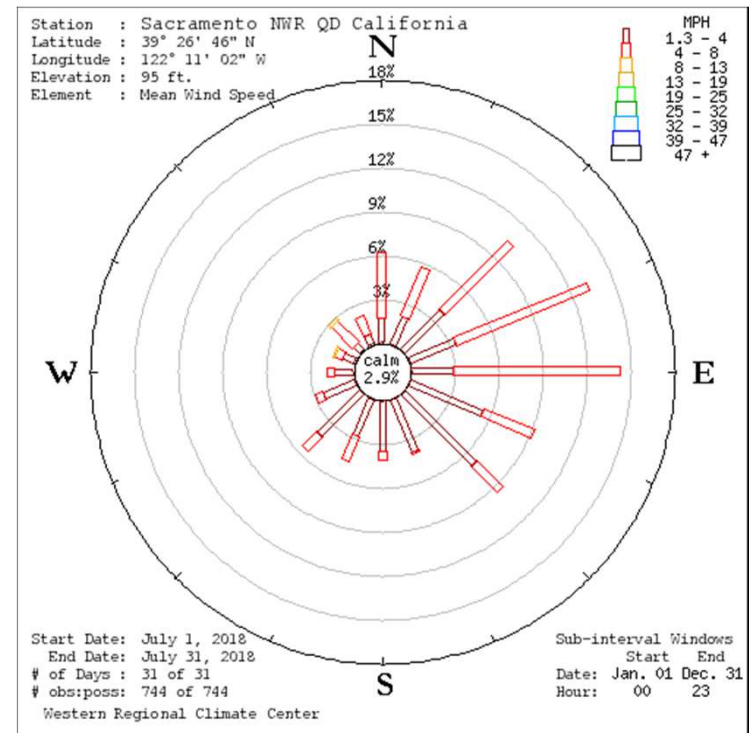
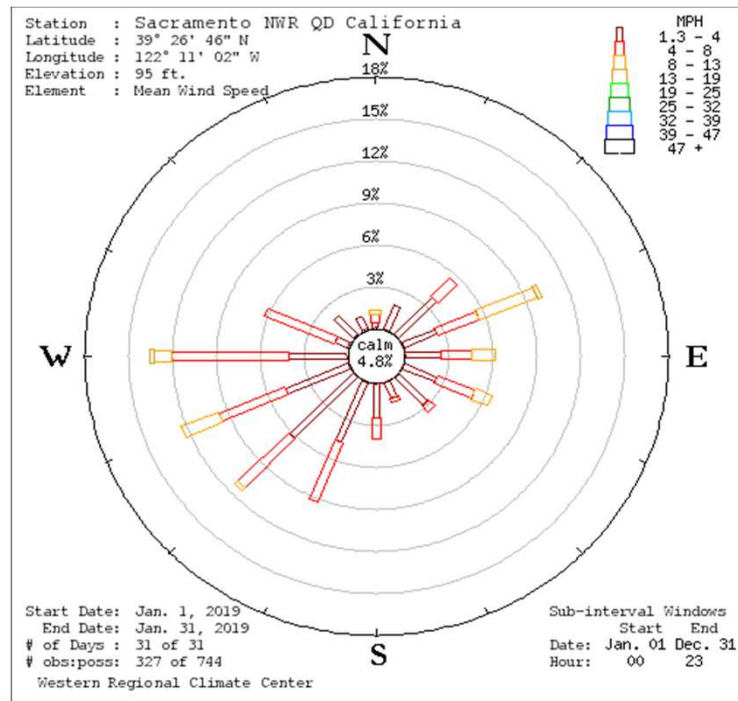
North: I want to add tall shrubs small trees along the fence line that borders the row of houses on the north end of the site. Although there will not be any shade benefit, it will provide privacy and a noise barrier.

West: The winter storm winds that come up from the Southwest have been doing quite a bit of damage over the last few years, uprooting trees, tearing down fences, etc. in our region. Having a barrier to the winds would protect the growing site and market stand from damage.

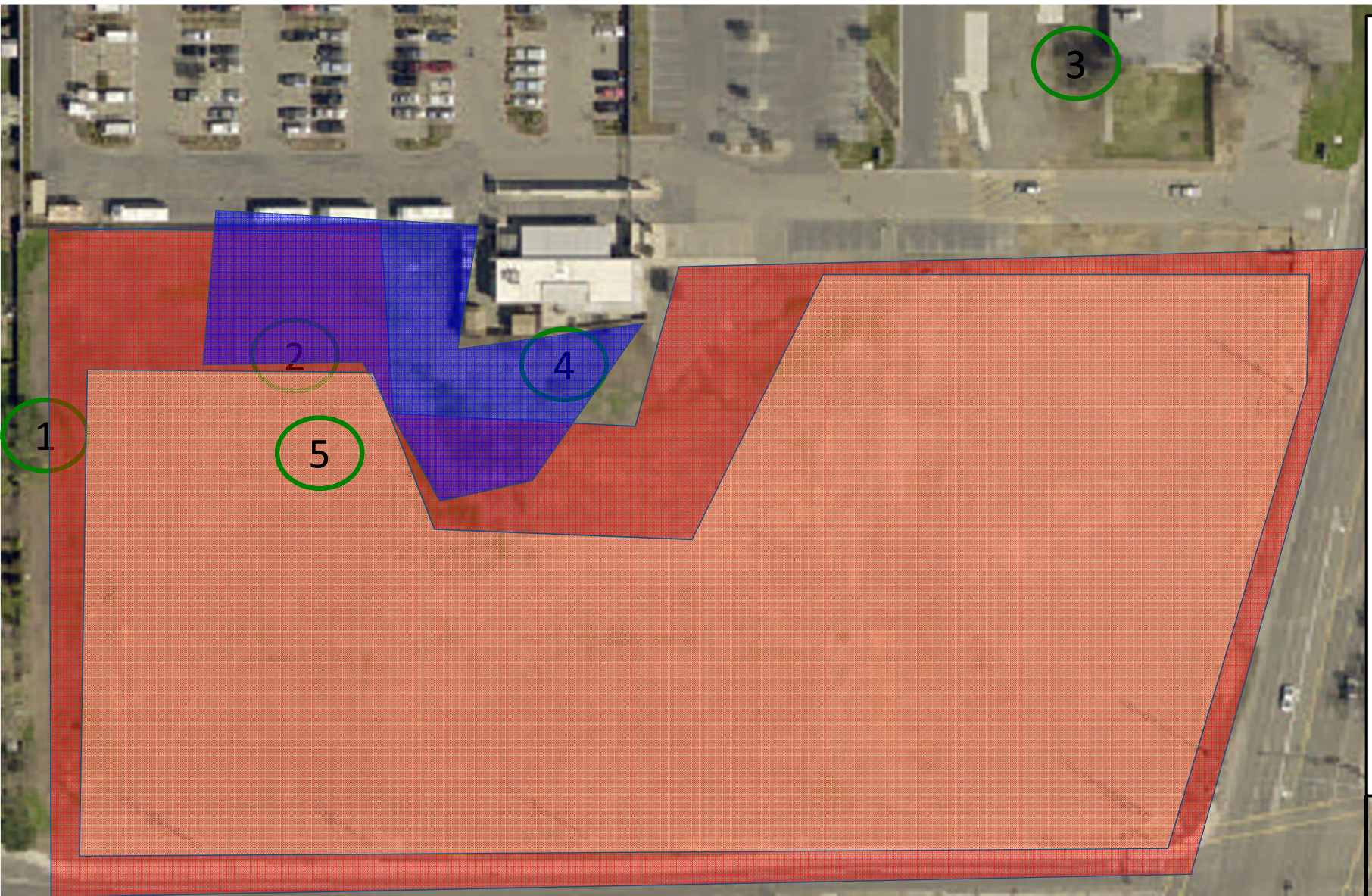
Use: The Juvenile Work Project building located at the east perimeter of the site has water access for irrigation of the raised beds and minor landscaping that surrounds the building. I want to gain access to the water supply for irrigation of the crops and drinking water at my site. In addition, the Summer and Winter sun faces north, and I want to use this north facing sun for crop production.

# Sector Compass Narrative Explanation (cont.)

## Sacramento NWR QD California

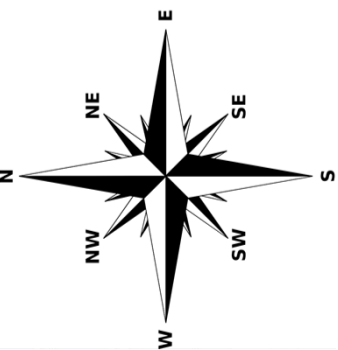






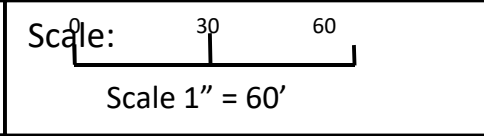
Key:

- Hot & Sunny
- Warm & Windy
- Summer Sun
- Dry
- Wet
- Cold & Shady
- Cold & Windy
- Winter Sun
- Other
- Other
- Other
- Other
- Other



Name: Rosemont Urban Agriculture Project

# Microclimates








OSU PERMACULTURE DESIGN COURSE

Date: 2/4/19



# Microclimates Plant Identification

Plant # on map	Photo	Genus	Species	Common Name	Family
1		<i>Juglans</i>	<i>hindsii</i>	Northern California Black Walnut	Juglandaceae
2		<i>Malvia</i>	<i>grandiflora</i>	Common Mallow	Malvaceae
3		<i>Liquidambar</i>	<i>styraciflua</i>	American Sweetgum	Hamamelidaceae
4		<i>Acer</i>	<i>saccharinum</i>	Silver maple	Aceraceae
5		<i>Agrimonia</i>	<i>gryposepala</i>	Tall hairy agrimony	Rosaceae

# Microclimates Plant Identification (cont.)

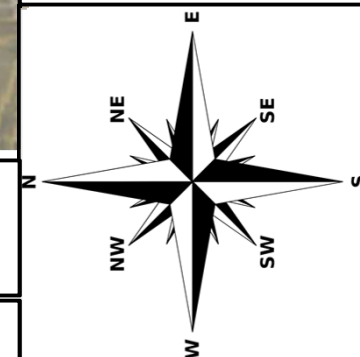
Plant # on map	Native location & preferred habitat:	Microclimate (light, water, soil, exposure)	Form (tree, shrub, grass etc.)	Edible, medicinal, useful, poisonous? Specify	Ecological function. Wildlife Habitat? Specify	Sources cited
1	Native to CA and is found mostly in Central and Northern CA. Preferred habitat is riparian forest and woodland; grows along streams and disturbed slopes, canyons and valleys.	Full sun, moist well drained soils. Prefers to be close to a water source.	Large deciduous tree (up to 60 ft)	Nuts are edible and have a comparable taste to <i>J. regia</i> which is commonly sold in supermarkets. Wood is used for furniture and gunstocks. <i>J. hindsii</i> is also used in propagation as rootstock for <i>J. regia</i> .	Nuts are a food source for local wildlife.	<a href="https://calscape.org/Juglans-hindsii-(Northern-California-Black-Walnut)?srchcr=sc5708872f8cdd6">https://calscape.org/Juglans-hindsii-(Northern-California-Black-Walnut)?srchcr=sc5708872f8cdd6</a>  <a href="https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecrenum=8943">https://www.calflora.org/cgi-bin/species_query.cgi?where-calrecrenum=8943</a>  <a href="http://sacramentofoodways.com/2014/02/10/sacramentos-black-walnuts-cracking-juglans-hindsii/">http://sacramentofoodways.com/2014/02/10/sacramentos-black-walnuts-cracking-juglans-hindsii/</a>
2	Native to Northern Europe, Northern Africa & Northern Asia. Grows as a weed in many places, found in gardens, fields and lots.	Full sun to part shade, moist but well drained soils.	Herbaceous perennial, 2-4ft tall, 2-3ft wide, shoots grow from basal clump at base.	All parts edible, comparable to spinach. Medicinal uses include diuretic, astringent, expectorant and laxative.	Negative impact; can decrease crop yield, increase pests and disease	<a href="https://www.permaculture.co.uk/reader-solutions/benefits-common-mallow-malva-sylvestris">https://www.permaculture.co.uk/reader-solutions/benefits-common-mallow-malva-sylvestris</a>  <a href="https://pfaf.org/user/Plant.aspx?LatinName=Malva+sylvestris">https://pfaf.org/user/Plant.aspx?LatinName=Malva+sylvestris</a>  <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=282568&amp;isprofile=0&amp;">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=282568&amp;isprofile=0&amp;</a>
3	Native to Eastern US. USDA Zones 5-9. Prefers moist, low woods.	Swampy woods, full sun.	Deciduous tree, grows to 80 ft tall, 60 feet wide.	Resin has been used for chewing gum and a cake stabilizer; wood used for furniture	Seeds eaten by birds, squirrels and chipmunks.	<a href="https://pfaf.org/user/Plant.aspx?LatinName=Liquidambar+styraciflua">https://pfaf.org/user/Plant.aspx?LatinName=Liquidambar+styraciflua</a>  <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c116">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c116</a>
4	Native to Eastern US and Southeastern Canada, USDA Zones, 3-9. Prefers moist, poorly drained soils on floodplains and along rivers and streams.	Full sun to part shade; medium to wet water needs.	Deciduous tree, grows 50-80 feet high, 35-70 feet spread.	Sap has been used to make sugar, medicine and bread. Wood is very popular for making furniture and tools, as well as paper.	The buds attract squirrels, and the bark is eaten by beaver and deer. Seeds are often eaten by squirrels, chipmunks and birds.	<a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=275381">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=275381</a>  <a href="https://pfaf.org/User/Plant.aspx?LatinName=Acer+saccharinum">https://pfaf.org/User/Plant.aspx?LatinName=Acer+saccharinum</a>
5	Native to most of the US. Is commonly found in forests and woodlands. Has a wide distribution.	Prefers sandy or loamy soils. Does not grow well in clay soils.	Yellow flowering perennial herb, grows 1-5 ft high.	Popular among many indigenous peoples for treatment of diarrhea, nosebleeds, urinary problems, fevers, etc.	This plant is a food source for many butterflies and moths in the order Lepidoptera.	<a href="https://calscape.org/Agrimonia-gryposepala-(I)">https://calscape.org/Agrimonia-gryposepala-(I)</a> <a href="http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=12171">http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=12171</a> <a href="https://en.wikipedia.org/wiki/Agri">https://en.wikipedia.org/wiki/Agri</a>





**Key:**

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5
- Walking path
- Biking path
- Driving path
- Gate
- Door
- Other
- Other
- Other
- Other



Name: Rosemont Urban Agriculture Project	<i>Current Zones</i>	Scale: <span style="display: inline-block; width: 60px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 0; top: -10px;">0</span> <span style="position: absolute; left: 30px; top: -10px;">30</span> <span style="position: absolute; left: 60px; top: -10px;">60</span> </span> Scale 1" = 60'
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date: 2/4/2019	

## *Zone Map Narrative Explanation*

The site is located at an intersection of two streets. Kiefer Boulevard runs roughly NW to SE, and Mayhew Drive runs N to S. Foot traffic is semiregular along Mayhew Drive. On the Kiefer side there is no sidewalk, so foot traffic is less common. Vehicle traffic is moderate on Kiefer, as the central section of Rosemont is to the West and Bradshaw Road (which divides Rosemont and Rancho Cordova) is to the East. Across from the site on the South is the US Post Office, and to the East of the post office is Rosemont High School.

The Youth Detention Facility has minimal traffic, from my observations. The parking lot directly to the east of the site is for intake and employees.

The majority of the site receives full sun, but there are 6 trees that surround the Juvenile Work Project building. During spring and summer I imagine they would provide a modest amount of shade.

## *Water Survey*

### **Where does your drinking water come from in your current home?**

We get our water from the City of Sacramento, a community water system--the source is groundwater.

### **Where does your wastewater go?**

From my home (about half a mile west), water is collected by the Sacramento Area Sewage District. It flows to the Sacramento Regional County Sanitation District intercept system, then conveyed to the Sacramento Wastewater Treatment Plant.

### **What is the record 24 hr rainfall for your design site?**

5.28 inches. April 20, 1880

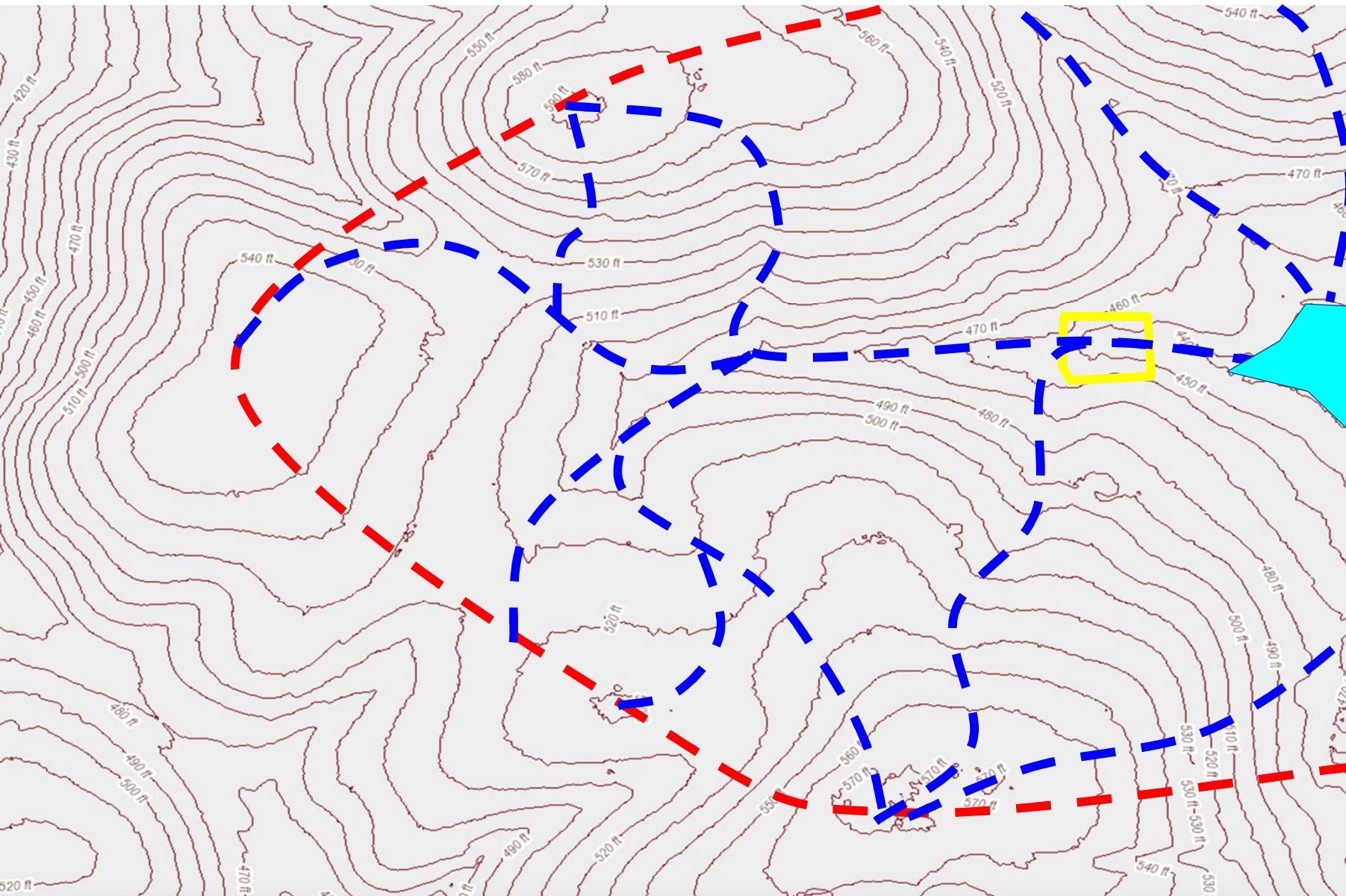
### **What is the average 5-year 24 hr rainfall event?**

4.20 inches

### **What are the roofing materials on your design site (if any)?**

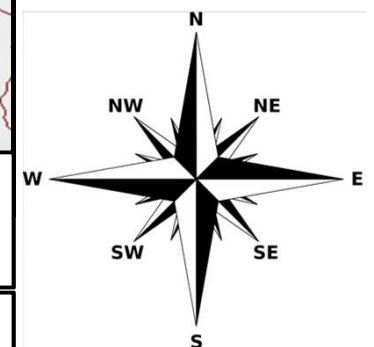
N/A





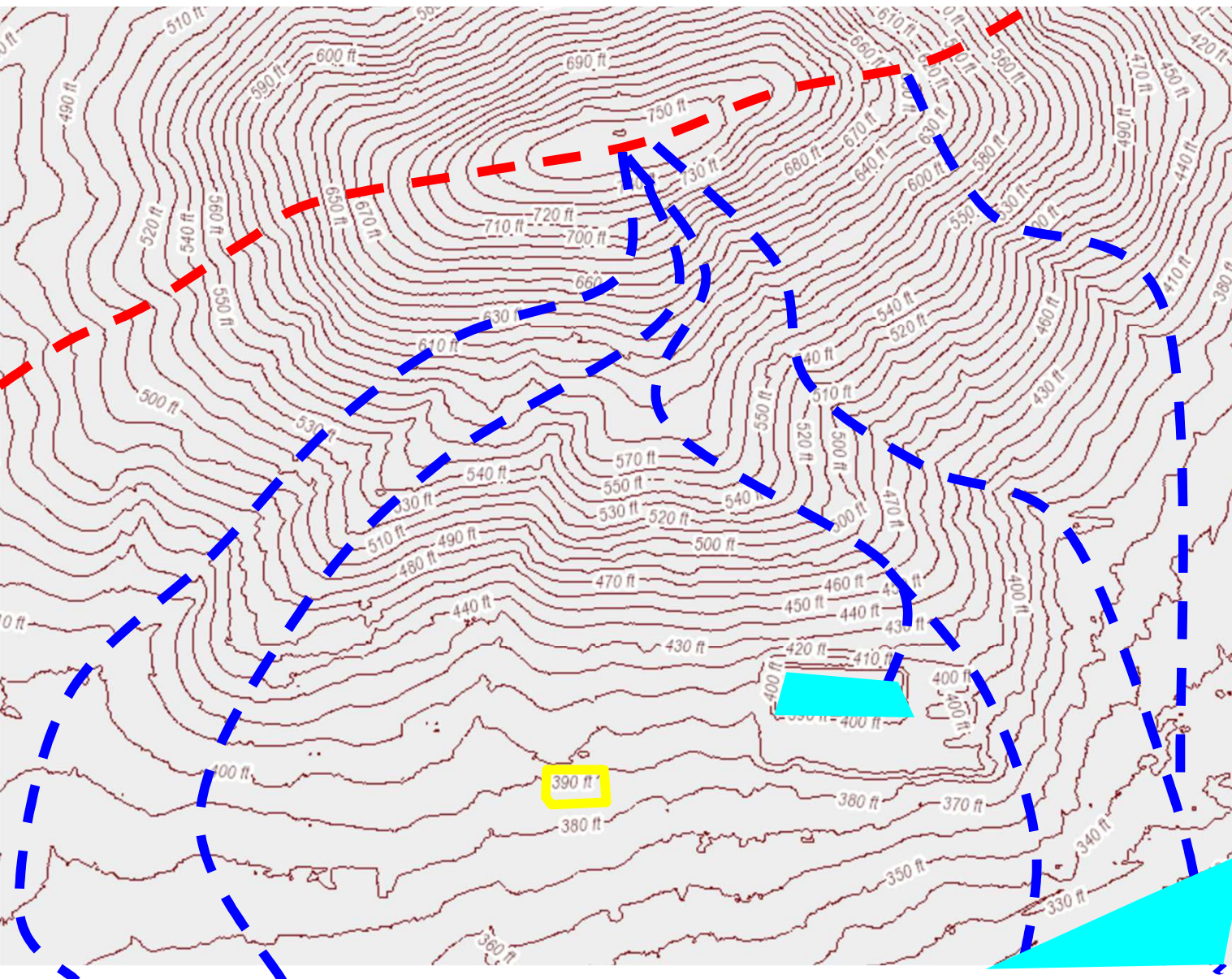
Key:

- Watershed Boundary
- Watershed Basin
- Water Flow Line
- Design Site
- Other
- Other
- Other
- Other
- Other



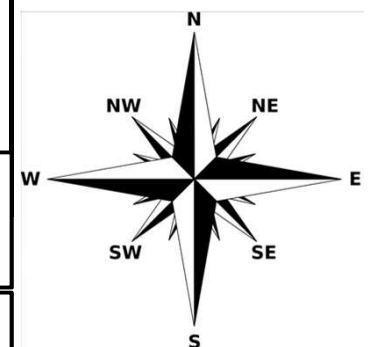
Name:	<i>Watershed Practice Sheet 1</i>	Not to scale
<b>OSU PERMACULTURE DESIGN COURSE</b>		Date:



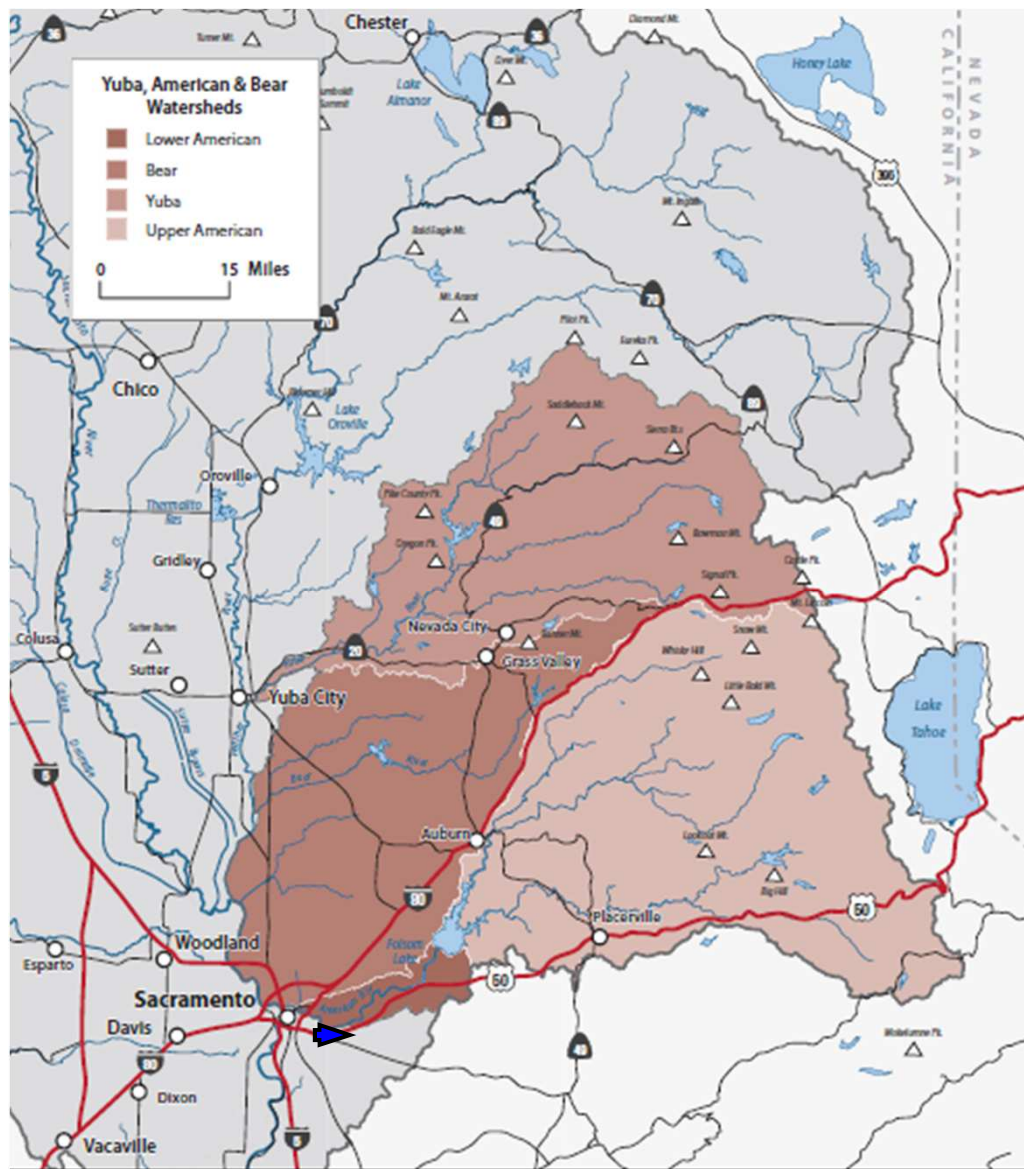


Key:

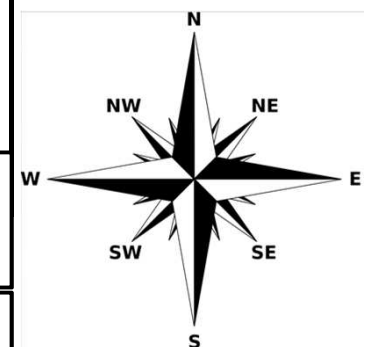
- Watershed Boundary
- Watershed Basin
- Water Flow Line
- Design Site
- Other
- Other
- Other
- Other
- Other



Name:	<i>Watershed Practice Sheet 2</i>	Not to Scale
<b><i>OSU PERMACULTURE DESIGN COURSE</i></b>		Date:



- Key:
- Watershed Boundary
  - Watershed Basin
  - Water Flow Line
  - Site Boundary
  - Other
  - Other
  - Other
  - Other
  - Other



Rosemont Urban  
Agriculture Project

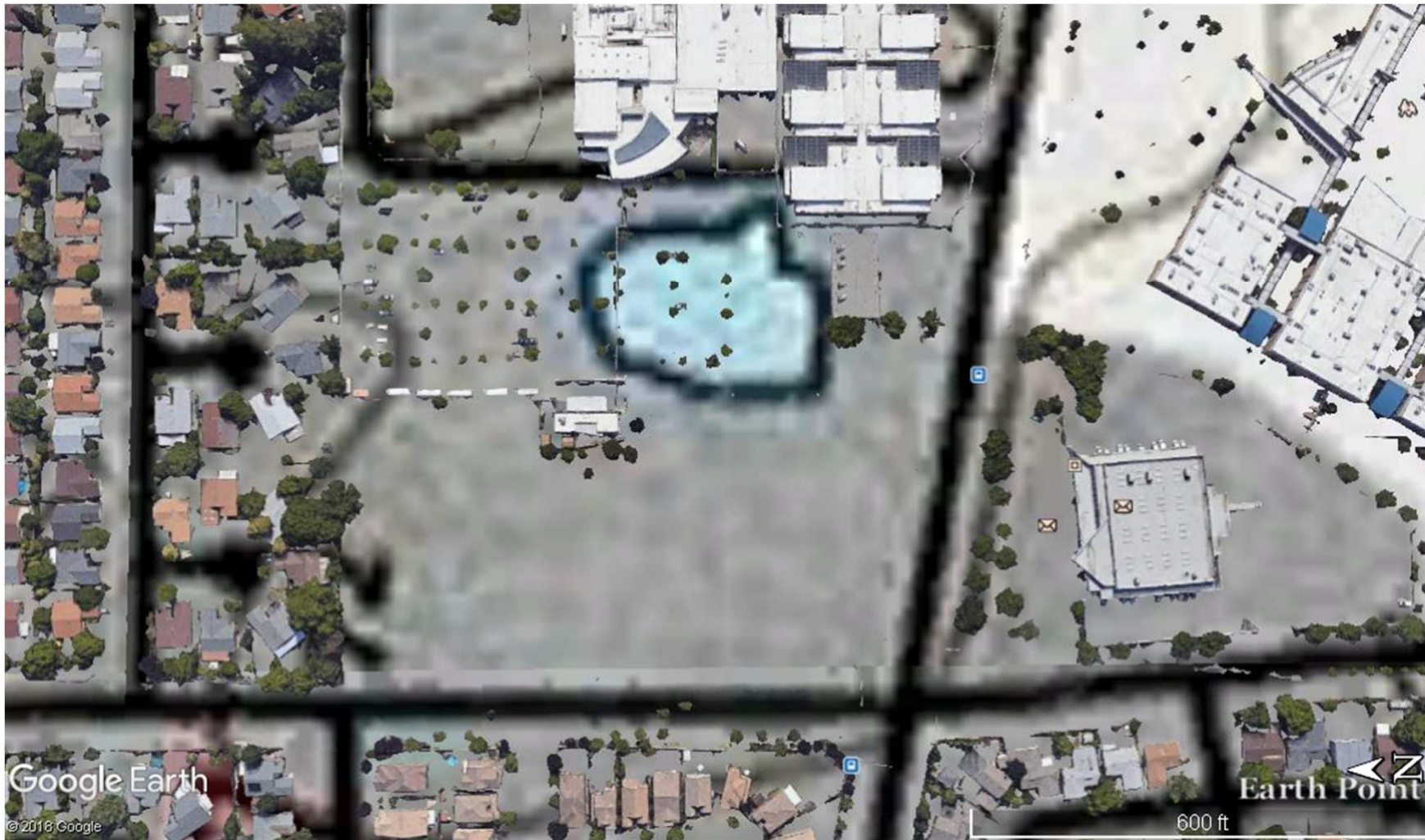
*Watershed - Macro*

Scale:

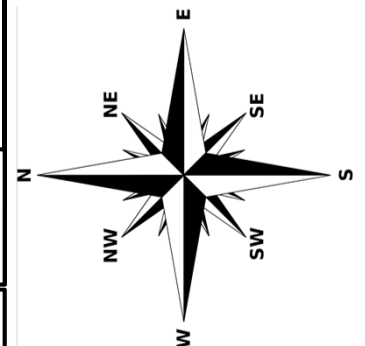
**OSU PERMACULTURE DESIGN COURSE**

Date: 2/11/19



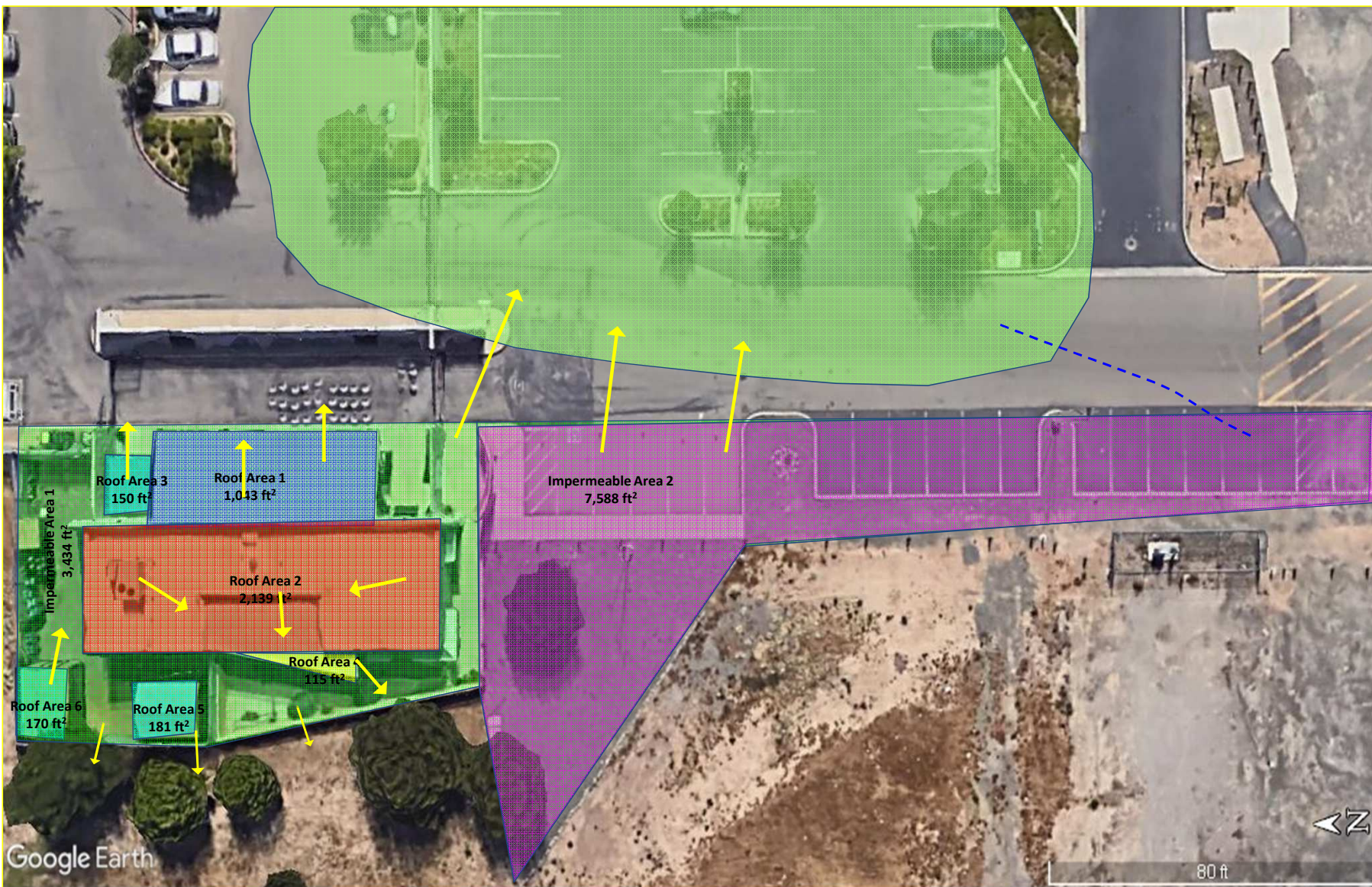


- Key:
- Watershed Boundary
  - Watershed Basin
  - Water Flow Line
  - Site Boundary
  - Contour Lines
  - Other
  - Other
  - Other
  - Other



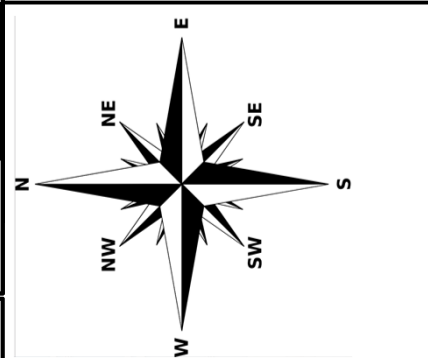
Rosemont Urban Agriculture Project	<i>Watershed - Micro</i>	Scale: $0$  Scale 1" =
<b>OSU PERMACULTURE DESIGN COURSE</b>		Date: 2/11/19





**Key:**

- Watershed Boundary
- Watershed Basin
- Water Flow Line
- Site Boundary
- Contour Lines
- Other
- Other
- Other
- Other

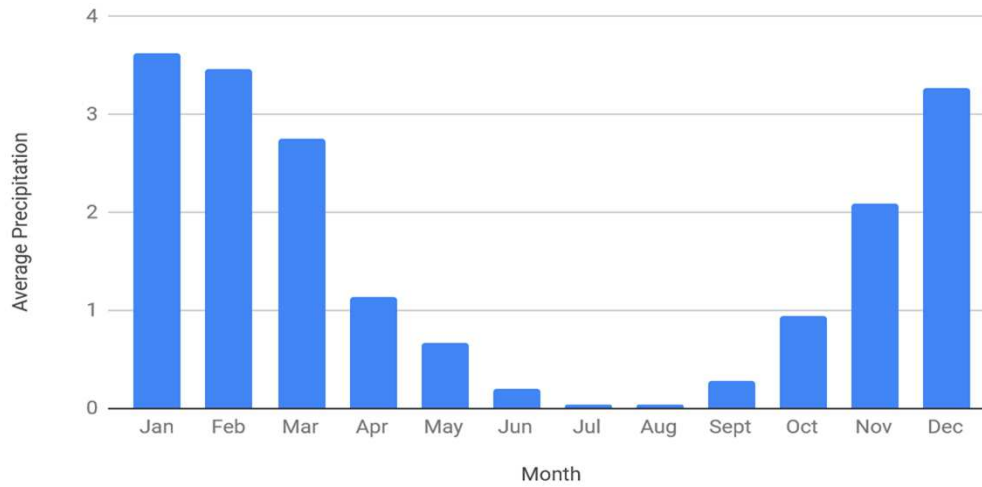


Rosemont Urban Agriculture Project	<i>Watershed - Micro</i>	Scale:  Scale 1" = 80'
<b>OSU PERMACULTURE DESIGN COURSE</b>	Date: 2/11/19	



# Site Water Flow

Monthly Average Precipitation - Sacramento, California



## Convenient conversions

### Imperial:

1 inch = .083 feet

1 cubic foot = 7.48 gallons

1 acre foot = 325,852 gallons

### Metric:

1 hectare = 1000 square meters

1 cubic meter = 1000 litres

1 megaliter = 1,000,000 litres

<b>A.</b> Total area of site (in square feet, square meters, acres, or hectares)	<b>B.</b> Yearly average rainfall (in feet or meters)	Total rain falling on site in average year ( <b>AxB=</b> ) <b>Imperial:</b> Multiply by 7.48 for gallons. <b>Metric:</b> Divide cubic meters by 1000 for litres.
5.4 acres / 237,308.5 ft <sup>2</sup>	1.536 feet / 18.51 inches	2,726,503.8 gallons
<b>A.</b> Total area of site (in square feet, square meters, acres, or hectares)	<b>B.</b> 100 Year 24 hr rain event (in feet or meters)	Total rain falling on site in 100 Yr 24 hr event ( <b>AxB=</b> ) <b>Imperial:</b> Multiply by 7.48 for gallons. <b>Metric:</b> Divide cubic meters by 1000 for litres.
5.4 acres / 237,308.5 ft <sup>2</sup>	.448 feet / 5.4 inches	795,230.3 gallon
Total area of land draining onto site (in square feet, square meters, acres, or hectares)	Yearly average rainfall (in feet or meters)	Total runoff volume draining onto site ( <b>AxB=</b> ) <b>Imperial:</b> Multiply by 7.48 for gallons. <b>Metric:</b> Divide cubic meters by 1000 for litres.
5.4 acres / 237,308.5 ft <sup>2</sup>	1.536 feet / 18.51 inches	2,726,503.8 gallons

## Site Water Flow (cont.)

Location	A. Area (in square feet or square meters)	Material	B. Yearly average rainfall (in feet or meters)	C. 100 year maximum 24 hr rainfall (in feet or meters)	D. Runoff Coefficient of surface	Yearly runoff volume (AxBxD= ) in cubic feet or cubic meters. <i>Imperial: Multiply by 7.48 for gallons.</i> <b>Metric:</b> Divide by 1000 for litres	100 year maximum 24 hr runoff volume (AxC= ) <i>Imperial: Multiply by 7.48 for gallons.</i> <b>Metric:</b> Divide by 1000 for litres
Roof Area 1	1,043ft <sup>2</sup>	metal shingle	1.54 feet	.45 feet/ 5.4 inches	1	12,105 gallons	42,129 gallons
Roof Area 2	2,139ft <sup>2</sup>	asphalt	1.54 feet	.45 feet/ 5.4 inches	.9	22,176 gallons	86,398 gallons
Roof Area 3	150ft <sup>2</sup>	asphalt shingle	1.54 feet	.45 feet/ 5.4 inches	.85	1,469 gallons	6,059 gallons
Roof Area 4	115ft <sup>2</sup>	metal shingle	1.54 feet	.45 feet/ 5.4 inches	1	1,325 gallons	4,645 gallons
Roof Area 5	181ft <sup>2</sup>	asphalt shingle	1.54 feet	.45 feet/ 5.4 inches	.85	1,772 gallons	7,311 gallons
Roof Area 6	170ft <sup>2</sup>	asphalt shingle	1.54 feet	.45 feet/ 5.4 inches	.85	1,665 gallons	6,867 gallons
Impermeable Area 1	3,402ft <sup>2</sup>	concrete slab	1.54 feet	.45 feet/ 5.4 inches	.9	35,269 gallons	137.414 gallons
Impermeable Area 2	7,588ft <sup>2</sup>	concrete slab	1.54 feet	.45 feet/ 5.4 inches	.9	78,667 gallons	306,494 gallons



## Soil Descriptions

Farmland classification: **Not prime farmland**

Typical profile: **H1 - 0 to 8" fine sandy loam**

**H2 - 8 to 15" loam**

**H3 - 15 to 28" sandy clay loam**

**H4 - 28 to 40" indurated**

**H5 - 40 to 45" weathered  
bedrock**

Drainage: **Well drained**

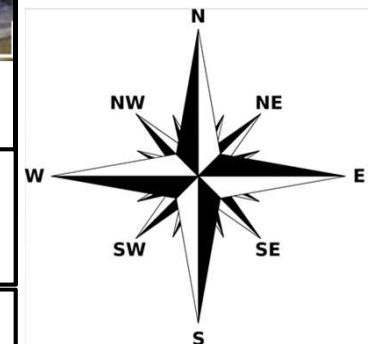
Depth to bedrock or restrictive feature: **28-40" to duripan; 40-44" to paralithic bedrock**

Depth to water table: **More than 80"**

Frequency of flooding: **None**

Available water storage in profile: **Very low  
(about 2.7")**

Hydric soil rating: **No**



Rosemont Urban  
Agriculture Project

# 13 - Soil Map

Scale: 0 200 400  
Scale 1" = 400'

OSU PERMACULTURE DESIGN COURSE

Date: 2/18/2019



Sacramento County, California

145—Fiddlyment fine sandy loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: hhmh  
Elevation: 50 to 280 feet  
Mean annual precipitation: 19 inches  
Mean annual air temperature: 61 degrees F  
Frost-free period: 230 to 300 days  
Farmland classification: Not prime farmland

Map Unit Composition

Fiddlyment and similar soils: 85 percent  
Minor components: 15 percent  
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fiddlyment

Setting

Landform: Hills  
Landform position (two-dimensional): Backslope  
Landform position (three-dimensional): Side slope  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Residium weathered from sedimentary rock

Typical profile

H1 - 0 to 8 inches: fine sandy loam  
H2 - 8 to 15 inches: loam  
H3 - 15 to 28 inches: sandy clay loam  
H4 - 28 to 40 inches: indurated  
H5 - 40 to 44 inches: weathered bedrock

Properties and qualities

Slope: 1 to 8 percent  
Depth to restrictive feature: 28 to 40 inches to duripan; 40 to 44 inches to paralithic bedrock  
Natural drainage class: Well drained  
Runoff class: Very high  
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e  
Land capability classification (nonirrigated): 4e  
Hydrologic Soil Group: D  
Ecological site: LOAMY CLAYPAN (R017XD047CA)  
Hydric soil rating: No

Minor Components

Andregg

Percent of map unit: 3 percent  
Hydric soil rating: No

Orangevale

Percent of map unit: 3 percent  
Hydric soil rating: No

Redding

Percent of map unit: 3 percent  
Hydric soil rating: No

Xerarents

Percent of map unit: 2 percent  
Hydric soil rating: No

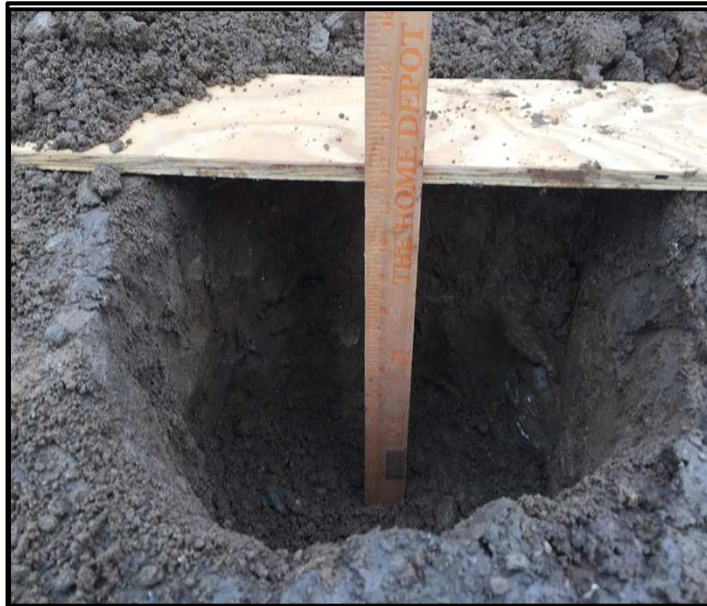
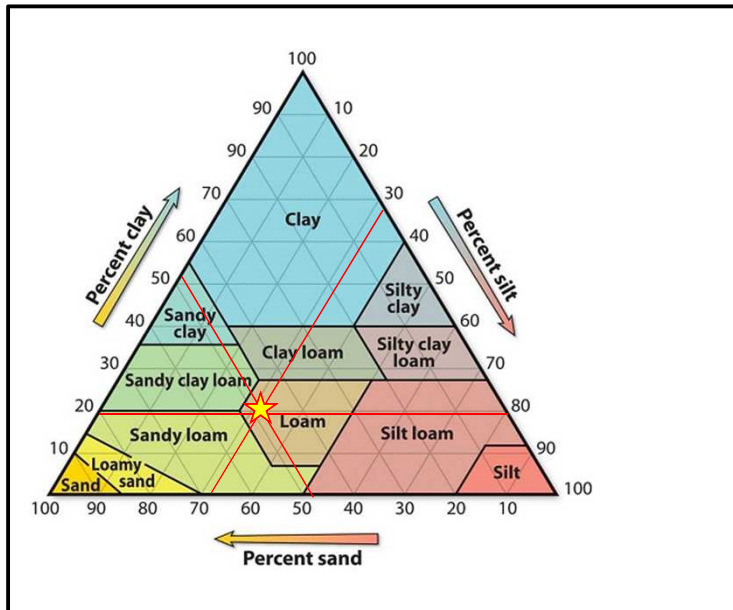
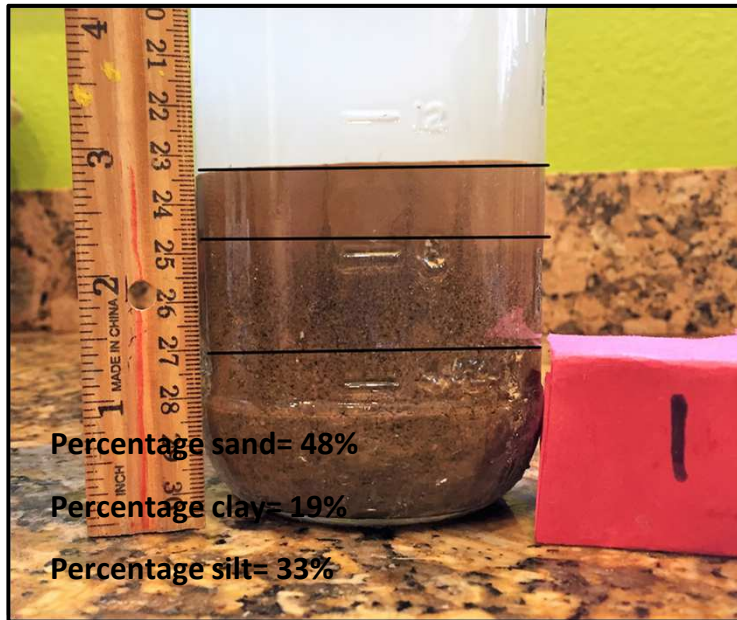
Unnamed, deeper

Percent of map unit: 2 percent  
Hydric soil rating: No

Unnamed, unloam subsoil

Percent of map unit: 2 percent  
Hydric soil rating: No

# Soil Tests: *SITE 1*



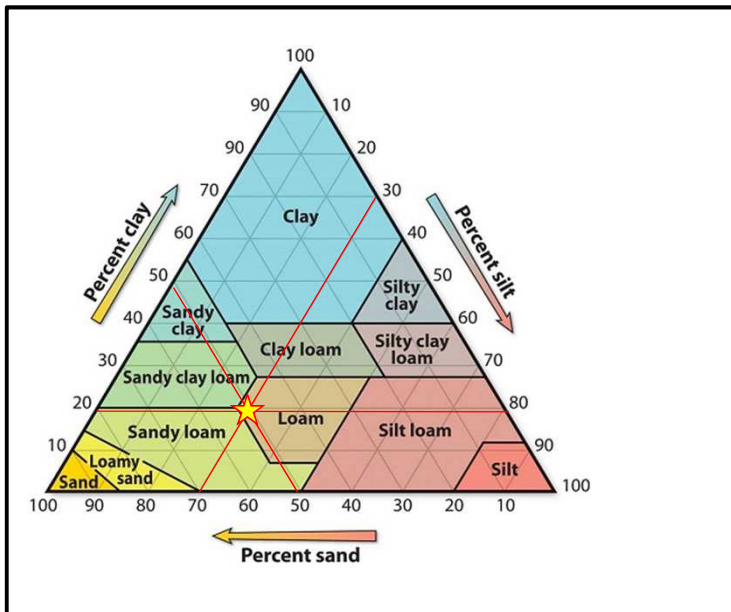
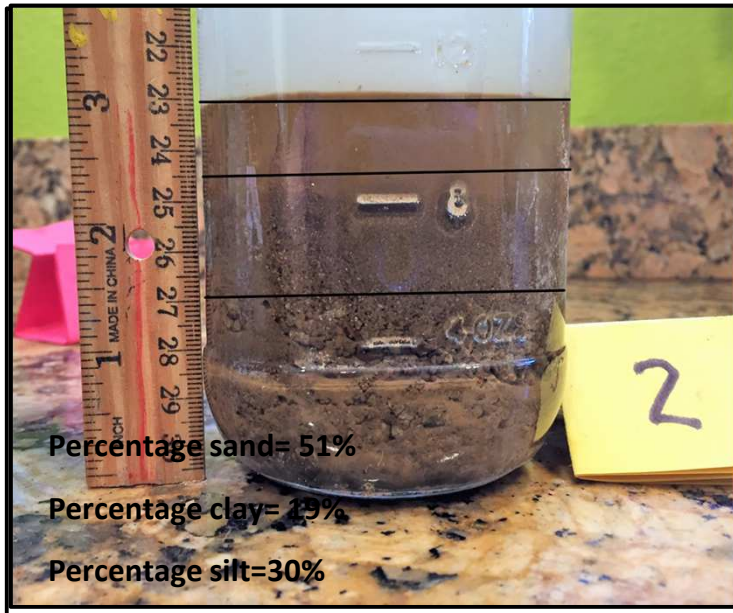
TEST 1 location is NW corner of site. I chose this location because it represents the most undisturbed soil. The area is relatively flat with some depressions in the land where water can collect. This section of the site is where most of the wild perennial weeds and grasses grow each spring.

## Ribbon Test:

Soil was somewhat gritty, but rolled into a ball once I added a bit of water. The soil broke apart immediately and was not able to form even a weak ribbon.



## Soil Tests: *SITE 2*



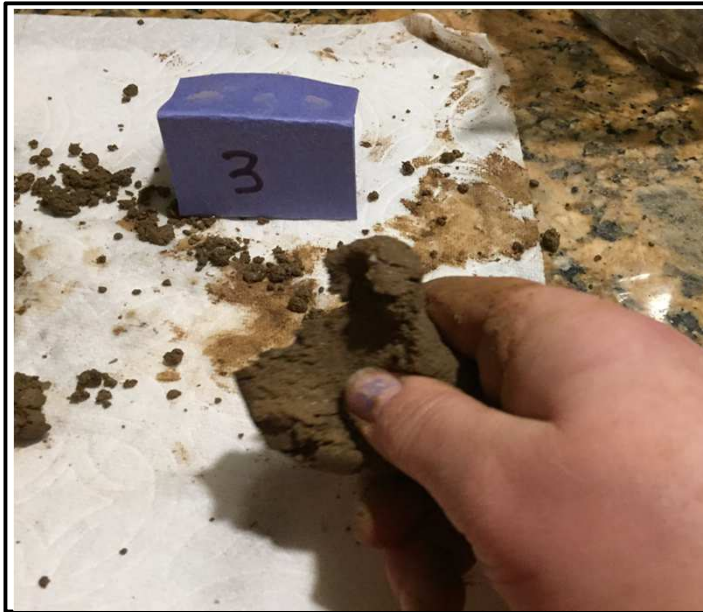
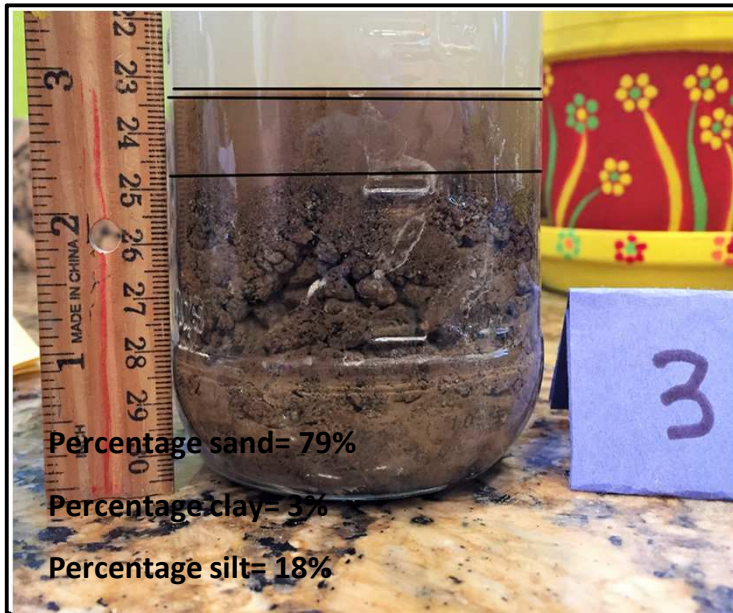
TEST 2 location is near center of site, atop the highest elevation point. This area appears to be where soil was discarded as a part of some County construction activities. I don't see any contaminants, so it was probably just topsoil. Perhaps it was moved from the location where the raised planter beds currently sit.

Ribbon Test:

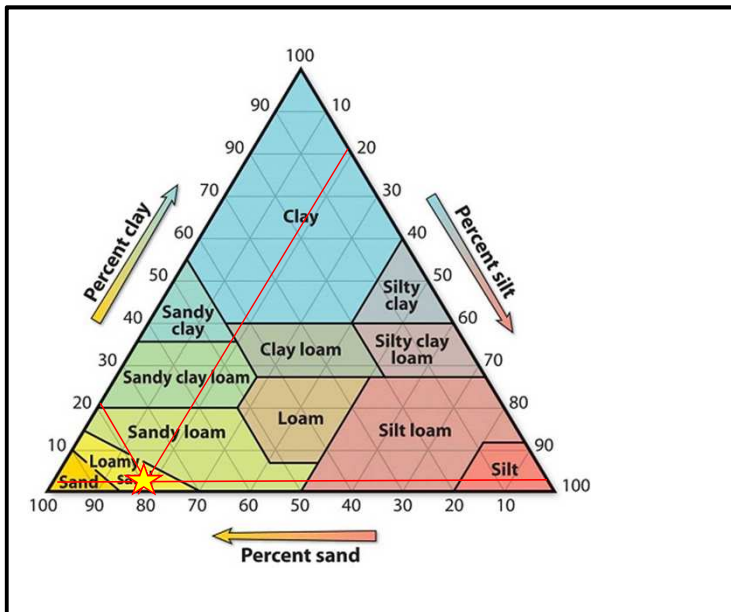
Like TEST 1, TEST 2 soil was too gritty to form even a weak ribbon.



## Soil Tests: *SITE 3*



Because there is no accessible water at this point, I bought 6 one-gallon jugs of water from the grocery store. I thought 2 per test hole would be enough, but it wasn't I ran out of water and was not able to perform the perc test for SITE 3.



TEST 3 location is near the SE corner of the site. This soil contains quite a bit of rocky material, more than I had anticipated. Digging was difficult and there was quite a bit of labor involved in sifting through the collected soil to pull out the rocks. The County Juvenile Hall facility in the past has used this part of the site to park the Work Project buses, and probably poured gravel in this section to provide a driveable surface for the vehicles.

Soil Test:  
Unable to perform. Soil was too rocky.

## *Soils Narrative Summary*

How do your soil samples 1-3 compare with the narrative descriptions of the soils on the soil maps?

**The soils were pretty true to the narrative descriptions from the soil maps. In test samples 1 and 2, at 12" depth, the soil profile was loam. In test site 3, the sample collected at 12" was sandy loam. This would make sense, given the layer of gravel that was added at some point by the County. I had to dig 8" before I found soil that was more consistent with test sites 1 and 2.**

What are the constraints and opportunities of your soil?

**In the southern  $\frac{1}{3}$  of the site, the top 8" of the soil is filled with gravel. This area is where I was considering having the education center/market stand, so this might actually work in my favor.**

**The area of the site where the soil is elevated (probably moved from another location) might need to be leveled. However, this also presents an opportunity to add a water collection system at the bottom of the slope so that water isn't lost to the drainage grates that are located at the lowest levels of the site.**

What local materials can you use for a soil building plan that can minimize your limitations?

**The northern  $\frac{2}{3}$  of the site will have some form of fruit and vegetable production. The addition of organic compost materials will help improve the soil for food production. Sacramento State University's Bioconversion and Agricultural Collaborative (BAC Yard) <https://www.csus.edu/aba/sustainability/bacyard.html> creates compost and has provided compost for other urban agriculture projects. I will be looking into a partnership with them to provide materials.**

**On the next three pages I have provided a complete soil analysis that was completed for the site in November 2018.**



## Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

Date Reported 11/09/2018  
Date Submitted 11/06/2018

To: Jeanette Dubesa  
Debesa Residence  
9113 Plumgrove Way.  
Sacramento, CA 95826

From: Gene Oliphant, Ph.D., \ Randy Horney  
General Manager \ Lab Manager

The reported analysis was requested for the following:  
Location : KIEFER AND MAYHEW Site ID : 11/6/18.  
Thank you for your business.

\* For future reference to this analysis please use SUN # 78438-164041.

### SOIL ANALYSIS

Saturation Percent (SP)	31	Soil Texture	Sandy Loam
pH	7.02		
E.C.	2.20	mmho/cm	
Tot.Dissolved Salts	1408	ppm	
Infiltration Rate (% Slope)	0.75	in/hr	
% Organic Matter	3.2		
C.E.C.	26.3	meq/100g	
Sodium Absorption Ratio (SAR)	2.4		
Exchangeable Sodium Percent (ESP)	2.3		
Gypsum Req. (CaSO4*2H2O)			
est. Nitrogen Release	1.2	#/1000 sq.ft.	

Nitrate	121.17	ppm	*****	*****	*****
Phosphorus	9.09	ppm	*****		
Potassium	95.03	ppm	*****		
Sulfur	169.28	ppm	*****		
Chloride	No Test		*****		
Carbonates	No Test		*****		
Sodium	136.41	ppm	*****		
Calcium	4801.23	ppm	*****		
Magnesium	179.41	ppm	*****		
Boron	0.28	ppm	*****		
Copper	No Test				
Iron	No Test				
Manganese	No Test				
Zinc	No Test				
			Very	Low	Adequate
			Low		Excessive



## Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

DATE 11/09/2018  
SUN NUMBER 164041

Information requested by:  
Jeanette Dubesa  
Debesa Residence

Information for:  
KIEFER AND MAYHEW  
Sample ID: 11/6/18

### SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

SOIL pH (Acidity and Alkalinity)  
The pH of this sample indicates the soil is in a range for normal growth of most plants. No modification is required.

### DISSOLVED SALTS (Indicated by E.C. & TDS)

Under these conditions the very salt sensitive plants may have some growth restriction. The soil may be improved by leaching with good quality water. Have the water analyzed before use to insure that the water is not the cause of the high salt in the soil. Leaching requires good quality water and adequate drainage through the root zone.

### SOIL TEXTURE AND RATE OF WATER INFILTRATION

The infiltration rate for all soil textures decreases with increasing ground slope. At 0 to 4%, 5 to 8%, 9 to 12%, 13 to 16% and above 16% the infiltration rate of this sample decreases from 0.75 to 0.60, 0.45, 0.30, 0.19, respectively. Infiltration rate also decreases with percent of ground cover and by compaction.

### WATER PENETRATION OF SOIL DUE TO CHEMICAL CHARACTERISTICS

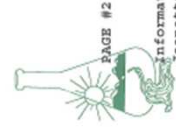
When exchangeable Sodium increases in the soil, water penetration decreases. Based on SAR and ESP values this sample has no penetration problem due to soil Sodium. No Gypsum required.

### ORGANIC MATTER

Organic matter provides a slow nitrogen release and aids water retention. This sample has a moderate Organic Matter content.

To maintain moisture and provide sustained nitrogen release a level of 10% organic matter is recommended. This can be accomplished by adding 3 yards per 1000 sq.ft. of ground fir bark that is approximately 75% organic matter (i.e. typically found in ground fir bark which also has naturally low salt and boron concentrations). In California, the MNEL ordinance requires a fixed application of four yards of COMPOST if the soil organic matter is less than 6%. However, of significant concern when applying COMPOST is the potential for the compost to have high salt, high boron content, high C to N ratio and having a highly variable pH (very high to very low). All of these COMPOST characteristics can have very negative affect on plant growth. Take care by having the compost analyzed or by seeing a recent analysis of the compost to be used.





**Sunland Analytical**  
11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

PAGE #2

DATE 11/09/2018  
SUN NUMBER 164041

Information requested by:  
Jeanette Dubesa  
Debesa Residence  
Sample ID: 11/6/18

Information requested by:  
Jeanette Dubesa  
Debesa Residence

DATE 11/09/2018  
SUN NUMBER 164041

Information for:  
KIEFER AND MAYHEW  
Sample ID: 11/6/18

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING

**SOIL BORON**  
Boron concentrations are in a range allowing normal plant growth.  
**SOIL MACRONUTRIENTS : NITROGEN-PHOSPHORUS-POTASSIUM (N-P-K)**  
**GENERAL N-P-K RECOMMENDATION**

**Summary and Suggested Sequence of Soil Improvements (#/1000 Sq.Ft.)**  
=====

Use ONE of these NPK preparations for the first fertilizer application.

Standard NPK Fertilizer Preparations	6-20-20	5-20-10	16-16-16	0-10-10	28-3-4	21-0-0	Choice
-----	-----	-----	-----	-----	-----	-----	-----
#/1000 sq.ft.	N/A	N/A	N/A	22	N/A	N/A	N/A

**GRASS OR SOD PREPARATION**  
Till in organic matter, N,P,K and micro nutrients in addition to any lime gypsum or sulfur as directed above. Smooth soil surface and follow seed or sod producers direction for moisture and product application.

**Maintenance Fertilization**  
Apply 5 pounds of Ammonium sulfate (21-0-0) per 1000 sq.ft. every month until plants become established. After established, apply 28-3-4 (or similar preparation) to provide desired growth rate and color.

**TREES AND SHRUBS**  
Excavate holes for planting shrubs and trees to at least twice the volume of the container. Prepare backfill for tree and shrub planting holes by mixing three parts of native soil (or imported top soil) with one part organic amendment (preferably nitrogen and iron fortified) and 2.5 pounds of 6-20-20 per yard of mix. For extended fertilization, place slow release fertilizer tablets in each hole per manufacturer's instructions. If 6-20-20 was not directly added to backfill mix, during backfill apply uniformly 1/2 oz of 6-20-20 per gallon containers, 2.5 oz per 5 gallons, 6 oz per 24 inch boxes.



**Sunland Analytical**  
11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

PAGE #3

Information requested by:  
Jeanette Dubesa  
Debesa Residence

DATE 11/09/2018  
SUN NUMBER 164041

Information for:  
KIEFER AND MAYHEW  
Sample ID: 11/6/18

SOIL RECOMMENDATIONS FOR LANDSCAPE GARDENING



# Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

Date Reported 11/09/2018  
Date Submitted 11/06/2018  
Date Collected 11/04/2018  
ELAP CERT # 2014

To: Jeanette Dubesa  
Debesa Residence  
9113 Plumgrove Way.  
Sacramento, CA 95826

From: Gene Oliphant, Ph.D. \ Randy Horneyp  
General Manager \ Lab Manager

The reported analysis was requested for the following:  
Location : KIERER AND MAYHEW Site ID : 11/6/18.  
Your purchase order number is .  
Thank you for your business.

\* For future reference to this analysis please use SUN # 78440-164043.

## ANALYSIS OF SOIL FOR 503 REGULATED METALS

Percent Moisture 3.5

\* Sample analyzed as received and reported on a dry weight basis.

Regulated Limits ++	Values Determined +	Detection Limits
41 Arsenic (As)	1.856 mg/kg	0.011
39 Cadmium (Cd)	ND	0.04
1200 Chromium (Cr)	19.6 mg/kg	0.12
N.E. Cobalt (Co)	No Test	0.07
1500 Copper (Cu)	19.4 mg/kg	0.06
300 Lead (Pb)	7.9 mg/kg	0.06
17 Mercury (Hg)	0.03 mg/kg	0.01
N.E. Molybdenum (Mo)	No Test	0.08
420 Nickel (Ni)	11.6 mg/kg	0.02
36 Selenium (Se)	ND	0.024
2800 Zinc (Zn)	37.6 mg/kg	0.02

ND = value below detection limits  
N.E. = value not established by regulatory agencies  
Digest Method 3050 A or B  
EPA SW-846 ICP 6010 and EPA SW-846 7470A or 7470B



# Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

11/09/2018

LABORATORY CONTROL REPORT  
Metal Analysis and Preparation for Sun Nos. 164043.  
Method of Sample Preparation:

Analyte	Conc. of Analyte	Accuracy %	Precision (+/- RPD)
Arsenic	5.000	104	<1
Cadmium	5.000	100	1
Chromium	5.000	105	<1
Copper	2.500	99	<1
Lead	5.000	101	2
Mercury	0.050	101	2
Nickel	5.000	98	3
Selenium	5.000	102	1
Zinc	5.000	99	1

NOTES (All of the following are specific for the current analysis process.)  
1. Analyte concentration is obtained from purchased Quality Control Standards  
2. Accuracy is the percent of the known analyte concentration determined  
and should fall within the range of 85 - 115%.  
3. Precision is the relative percent difference of two determinations (D1 & D2)  
of the know analyte. RPD= ((D1-D2)/(D1+D2)/2 ) \* 100

# Local Ecology Survey



Grasshopper  
primary consumer



California red-legged frog  
secondary consumer



Giant garter snake  
tertiary consumer



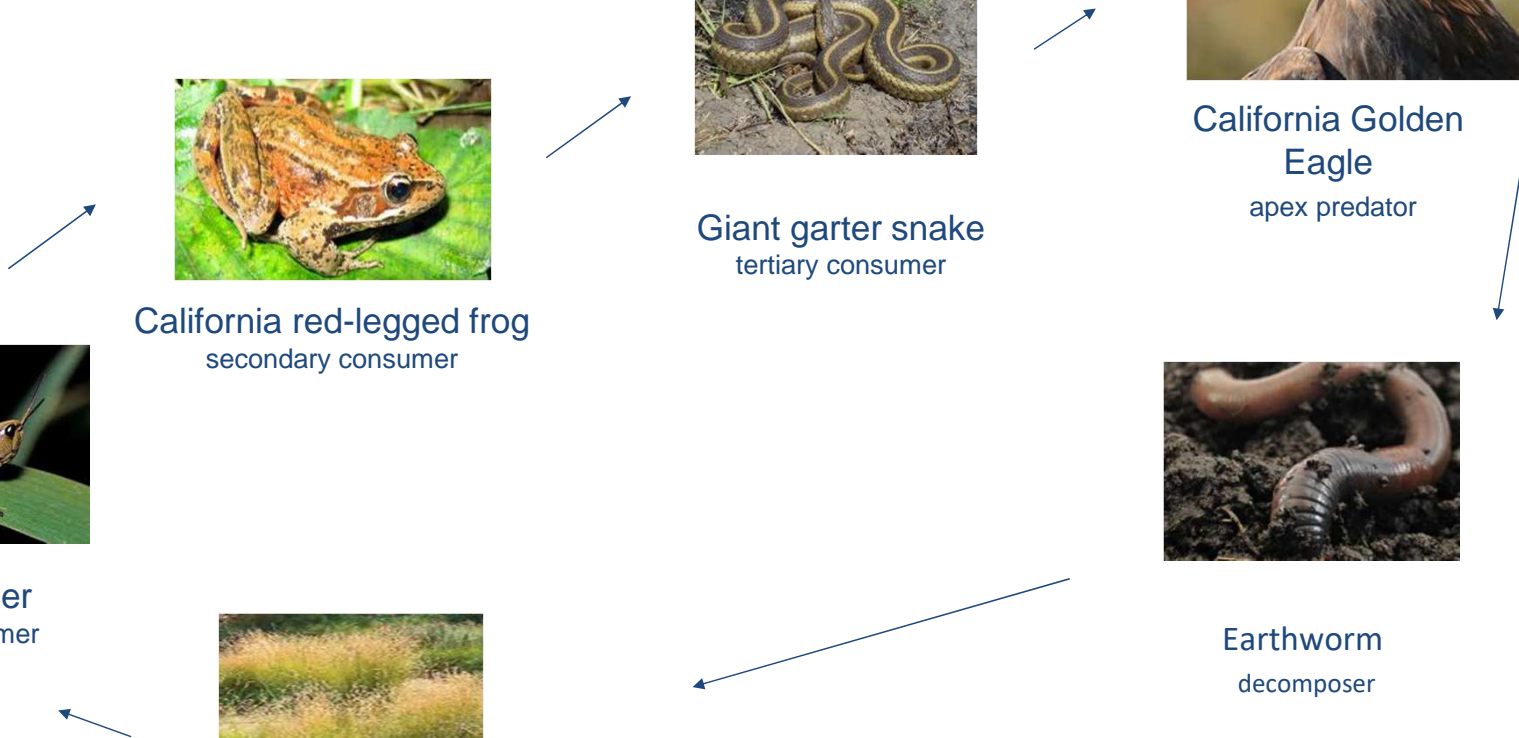
California Golden  
Eagle  
apex predator



Earthworm  
decomposer



Wild native grass  
producer





## Local Ecology Survey (cont.)



California scrub jay (*Aphelocoma californica*)



Red-tailed hawk (*Buteo jamaicensis*)



Mourning dove (*Zenaida macroura*)



Yellow-billed magpie (*Pica nuttalli*)



Wild turkey (*Meleagris gallopavo*)

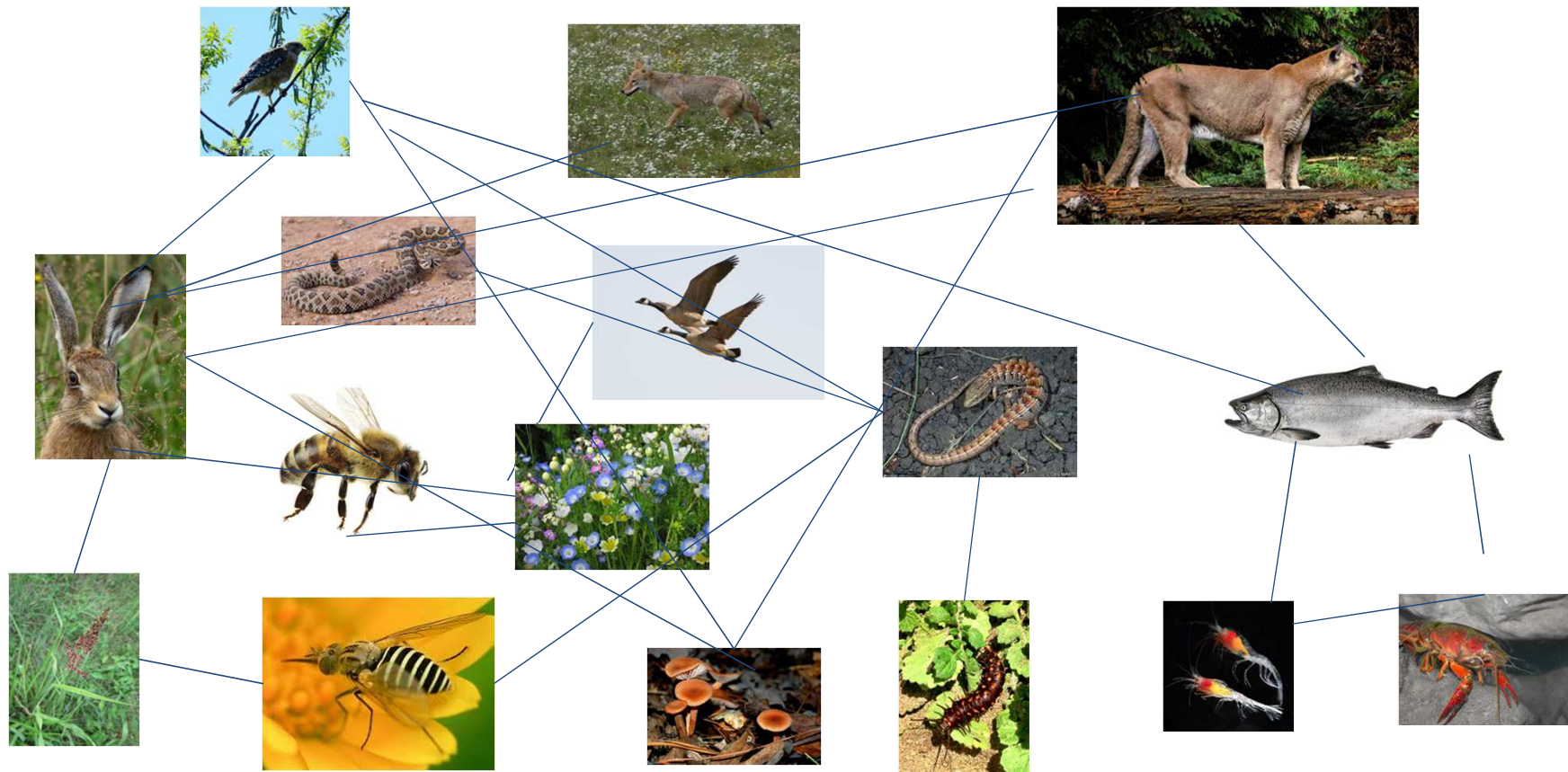
## *Local Ecology Survey (cont.)*

What is the climax community of flora and fauna in your area?

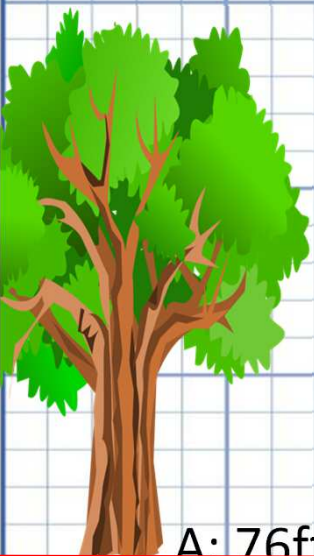
The American River flows Southwest from the Sierra Nevada Mountains, with its three forks converging just east of Sacramento. The American River Parkway is about 2.5 miles from the project location (as well as my home). This riparian area is home to many oak species, which provide food for many local fauna. Golden eagles and red-tailed hawks are among the apex predators in the area.

## *Local Ecology Survey (cont.)*

### Local Food Web - American River Parkway







A: 76ft.

Scale = 18t.



B: 74ft.

Distance A-B: 180 feet

## Elevation View

Scale:

Insert scale bar

Date: 2/25/2019

Rosemont Urban  
Agriculture Project

OSU PERMACULTURE DESIGN COURSE

# Local Food Survey

## Five native or naturalized medicinal plants in the Sacramento Valley and their uses

### *Achillea millefolium*

Common Yarrow

Famly: Asteraceae



Medicinal uses: Arthritis, toothaches, inflammation, headaches, menstrual pain, digestive problems, colds, bruises; promotes blood clotting.

Parts of plant used: Leaves, roots.

### *Eschscholzia californica*

California Poppy

Family: Papaveraceae



Medicinal uses: Acts as a diuretic and a sedative; relieves pain, spasms, anxiety, insomnia, incontinence, toothaches.

Parts of plant used: Sap is used as a narcotic for pain, entire plant dried and used in tinctures.

### *Juniperus californica*

California Juniper

Family: Cupressaceae



Medicinal uses: Treats cold, cough, flu, fever, high blood pressure, constipation.

Parts of plant used: berries, leaves and bark.



## Local Food Survey (cont.)

### Five native or naturalized medicinal plants in the Sacramento Valley and their uses

#### *Rhamnus californica*

Coffeeberry  
Family: Rhamnaceae



Medicinal uses: Acts as a laxative and coagulant; treats sores, burns, wounds and inflammatory rheumatism.

Parts of plant used: berries, sap, leaves and bark.

#### *Urtica dioica*

Stinging Nettle, California Nettle  
Family: Urticaceae



Medicinal uses: hay fever, arthritis, anemia, antridandruff, astringent, diuretic, haemostatic, hypoglycaemic, menstrual pain, arthritis, gout, sciatica, rheumatism, burns, rash, bruises, kidney and urinary problems, etc.

Parts of plant used: Entire plant

Have you used any of these or other plants for medicinal use?

I have not used any of these plants, but I have used echinacea and goldenseal for cold, valerian root for insomnia.

What prevents or supports your choice?

My experience with medicinal plants is limited to the herbal supplements found at health food markets.



## Local Food Survey (cont.)

Name one food that people historically ate during each season.

### Spring



*Trifolium variegatum*  
White-tipped clover



*Aquilegia formosa*  
Western columbine

### Summer



*Fragaria vesca*  
Wood strawberry



*Rubus ursinus*  
Blackberry

### Fall



*Quercus* spp.  
Acorns (various oaks)



*Pinus sabiniana*  
California foothill pine

### Winter



*Cantharellus californicus*  
Oak chanterelle

## *Local Food Survey (cont.)*

### Sacramento Area Nurseries

Big Oak Nursery  
Delta Tree Farms  
Devil Mountain Wholesale Nursery  
Eden Garden Supply  
Fair Oaks Boulevard Nursery  
Green Acres Nursery & Garden Supply  
Green Paradise Nursery  
Matsuda's Nursery  
Site One Landscape Supply  
Talini's Garden Center & Nursery  
Village Nurseries

## *Local Food Survey (cont.)*

List 4 farms in your area that you would be comfortable purchasing your food from and why you would be comfortable purchasing from them?

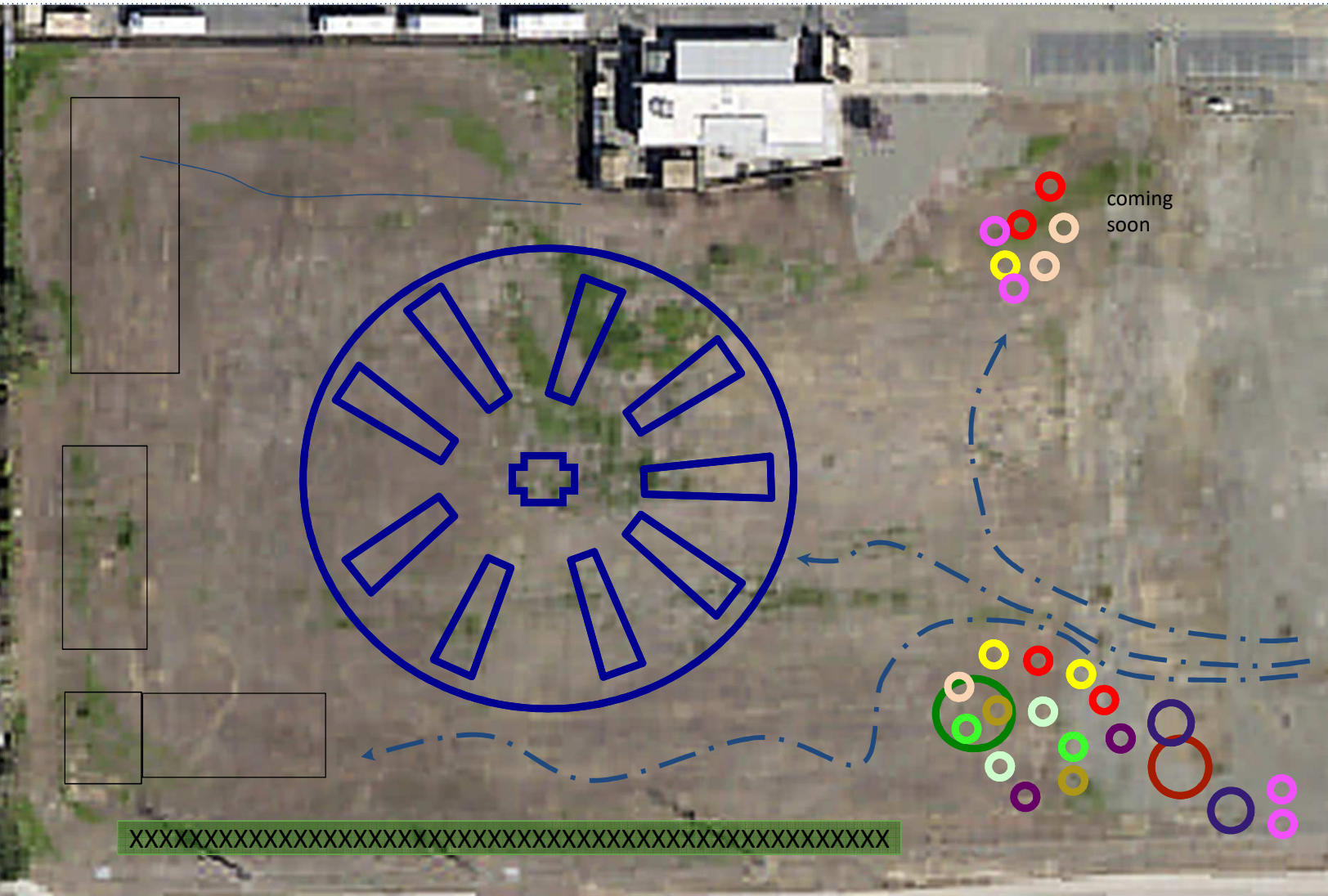
[Apple Hill](#) Apple Hill is an association of growers located 45 miles Northeast of Sacramento, in Placerville, CA. They have been around for 55 years, and no Autumn is complete without a visit with the family.

[Soil Born Farms](#) Located right on the American River, Soil Born Farms supports sustainable agriculture, education, farmer training, and has workshops and “Day on The Farm” activities throughout the year. It is absolutely one of my favorite places to spend a Saturday morning.

[Sola Bee Farm](#) This is the best local honey in the area, hands down. Their honey is sustainably harvested, locally sources and organic.

[Yisrael Family Farm](#) Chanowk and Judith Yisrael have been my inspiration to start my urban farm. They are providing food education and empowerment in their neighborhood of Oak Park, which is classified as a food desert. They are co-founders of the Sacramento Urban Agriculture Coalition, which helped to pass an ordinance to support urban agriculture in Sacramento County.

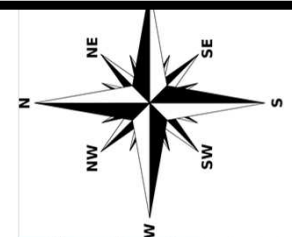




### Plant Key:

	Common name	Botanical name
	Stella Cherry	<i>Prunus avium</i> 'Stella'
	Silver Lupine	<i>Lupinus albus</i>
	Common Yarrow	<i>Achillea millefolium</i>
	Common Nettle	<i>Urtica dioica</i>
	Showy Milkweed	<i>Asclepias speciosa</i>
	Comfrey	<i>Symphytum officinale</i>
	Miner's Lettuce	<i>Claytonia perfoliata</i>
	Cowbag clover	<i>Trifolium depauperatum</i>
	California poppy	<i>Eschscholzia californica</i>
	Black Jack fig	<i>Ficus carica</i> 'Black Jack'
	Misty Southern Highbush Blueberry	<i>Vaccinium corymbosum</i> 'Misty'

Rosemont Urban Agriculture Project	<i>Plant System Design - Plan View</i>	Scale: <div style="background-color: yellow; padding: 2px;">Insert scale bar</div>
<b>OSU PERMACULTURE DESIGN COURSE</b>		Date:





Rosemont Urban Agriculture Project	<i>Plant System Design - Side View</i>	Scale:
<b><i>OSU PERMACULTURE DESIGN COURSE</i></b>	Date: 3/6/19	



## *Plant System Narrative Explanation*

My design goal for this site is agricultural production, along with areas of interest and education for the community. The northern  $\frac{2}{3}$  of the site will host a mandala-inspired bed, greenhouse, harvest donation collection, compost, and chicken coop. The southern  $\frac{1}{3}$  of the site will host my fruit tree guild, a butterfly and pollinator plant maze, and a small structure for market sales and educational activities.

### Edible Fruit Tree Guild

I selected the Stella cherry tree (*Prunus avium* 'Stella') for my primary species, because cherry is somewhat underrepresented in the area (and because they are my daughter's favorite fruit.) A Black Jack fig (*Ficus carica* 'Black Jack') and two blueberry shrubs (*Vaccinium corymbosum* 'Misty' and 'O'Neil'). The cherry and fig cultivars are self-fruitful, but the blueberry cultivars are not. The blueberry shrubs will benefit from cross-pollination in their fruit production.



## *Plant System Narrative Explanation (cont.)*

Edible Fruit Tree Guild cont.

The supporting plants I chose for my edible fruit tree guild are mostly native to the region, and each contribute to the guild by possessing at least one of the four required attributes: nitrogen fixers, dynamic accumulators, compost makers, and insect/pollinators plants.

**Nitrogen fixers:** Silver lupine, cowbag clover

**Dynamic accumulators:** Common yarrow, comfrey

**Compost makers:** Comfrey, common nettle

**Insect/pollinators:** Common yarrow, silver lupine, showy milkweed, California poppy, miner's lettuce

# Buildings Survey

The Sacramento Valley is located between the Sierra Foothills and the San Francisco Bay Area. The American River runs down from the Foothills and converges with the Sacramento River, where it then flows to the bay. These natural features made Sacramento an ideal location for indigenous tribes of California, and According to maps and records, several tribes took advantage of this region, including Miwok, Maidu, Nisenan (who have been grouped with both Maidu and Miwok), Patwin, Winton and others. (Today, there are currently 109 federally registered tribes in California, according to the most recent census data).

Despite the large number of different tribes, indigenous people of the Sacramento Valley used similar materials to make their homes. The basic construction was a dome shaped structure erected by willow poles; tule, brush, bark, grass, and earth were used to make the walls. Tule (*Schoenoplectus acutus*) is a large species of sedge in the Cyperaceae family that is found in freshwater marshes, which were abundant in the area. The floors were covered in foliage, and were often dug down a few feet to make houses roomier. In the center of the house floor is where the fire was built, and smoke holes allowed the smoke to escape. Larger ceremonial structures, called roundhouses, were used with the same materials and were used for dances and as sweathouses.



## *Buildings Survey (cont.)*

The indigenous tribes of California took advantage of the plentiful natural resources and built homes that provided them with warmth and shelter from the elements, as well as providing a space for ceremonies and everyday life. These traditions are preserved and celebrated at places like [Indian Grinding Rock State Park](#) in Jackson, CA (about 50 miles east of Sacramento).

Today one of the biggest constraints for building homes and structures in this region is fire. Wildfires have raged through parts of California for the last several years, and each fire season is worse than the last. Sadly, I don't think these traditional structure designs could withstand the devastation of a wildfire.

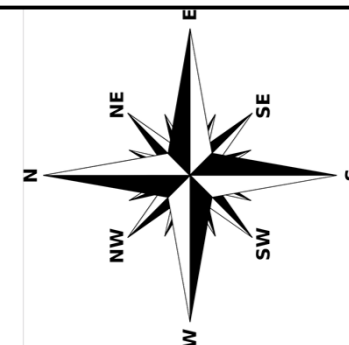






Key:

See Plant Key on slide 72.



Rosemont Urban Agriculture Project	<i>Zone 1 Design</i>	Scale:
<i>OSU PERMACULTURE DESIGN COURSE</i>		Date: 3/18/2019

# *Zone 1 Design Narrative Explanation*

## *Entrance*

The main entrance is at the southwest end of the site, at the corner of Kiefer Boulevard and Mayhew Road. This is the intersection that will be most visible to foot and vehicle traffic.

## *Farm Stand*

The farm stand will be a place where visitors can purchase seasonally available produce, interact with others, and participate in educational activities.

## *Edible Maze*

This is a raised rock garden bed that spirals toward the center. Visitors can pick berries and edible flowers along the path, and check out the variety of pollinator-friendly plants. Strawberry and raspberry, dandelion, cornflower, clover, hibiscus, lavender, ginger, oregano, and rosemary are among the plant list, and will be planted according to seasonal growing patterns.

# *Local Network Survey*

## *Like-minded folks*

- [Sacramento Valley Permaculture Guild](#)  
(Sacramento Area Facebook group)
- [Urban Permaculture Guild](#) (Bay Area)
- [Black Permaculture Network](#) (East Bay, CA)

## *Places to See*

- [Common Kettle Farms Kettle Farms](#)  
(Orangevale, CA)

## *Practitioners and Educators*

[Treetop Permaculture](#) (Oroville, CA)

[Sierra Permaculture Design](#) (Sierra Nevada Foothills, CA)

[Circlefoot Permaculture](#) (San Mateo, CA)

[Earthshed Solutions](#) (Chico, CA)

[Pandora Thomas](#) (East Bay, CA)

[Zaytuna College](#) (Berkeley, CA)

[Clearwater Landscape Design](#) – (Sacramento, CA)



## *Final Design Mission Statement & Goals*

The mission of this project is to design a site for urban agriculture, education and engagement in the community of Rosemont that embraces permaculture practices and philosophies.

### Goals:

- To create an urban farm that serves and supports the community of Rosemont and that is sustainable for generations to come.
- To partner with neighboring SCUSD schools in providing education and outreach for youth.
- To partner specifically with Rosemont High School's Culinary Arts program by providing fresh, organic and locally sourced produce for its training program.
- To provide intervention opportunities for youth currently detained at the Sacramento County Department of Juvenile Services, through the Work Release program.
- To act as a donation hub and clearinghouse for harvested tree fruit and produce from neighboring backyard gardens.
- To ensure that no one in the community goes hungry.



Key:



Downspout



Water Flow



Wet / Sunken Area



Mounded earth



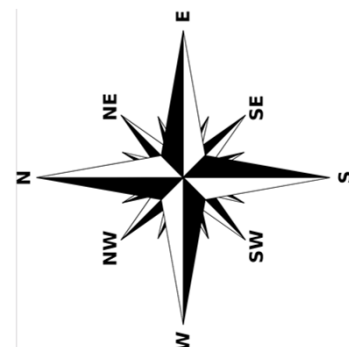
Contour line



Water source



Water Tank



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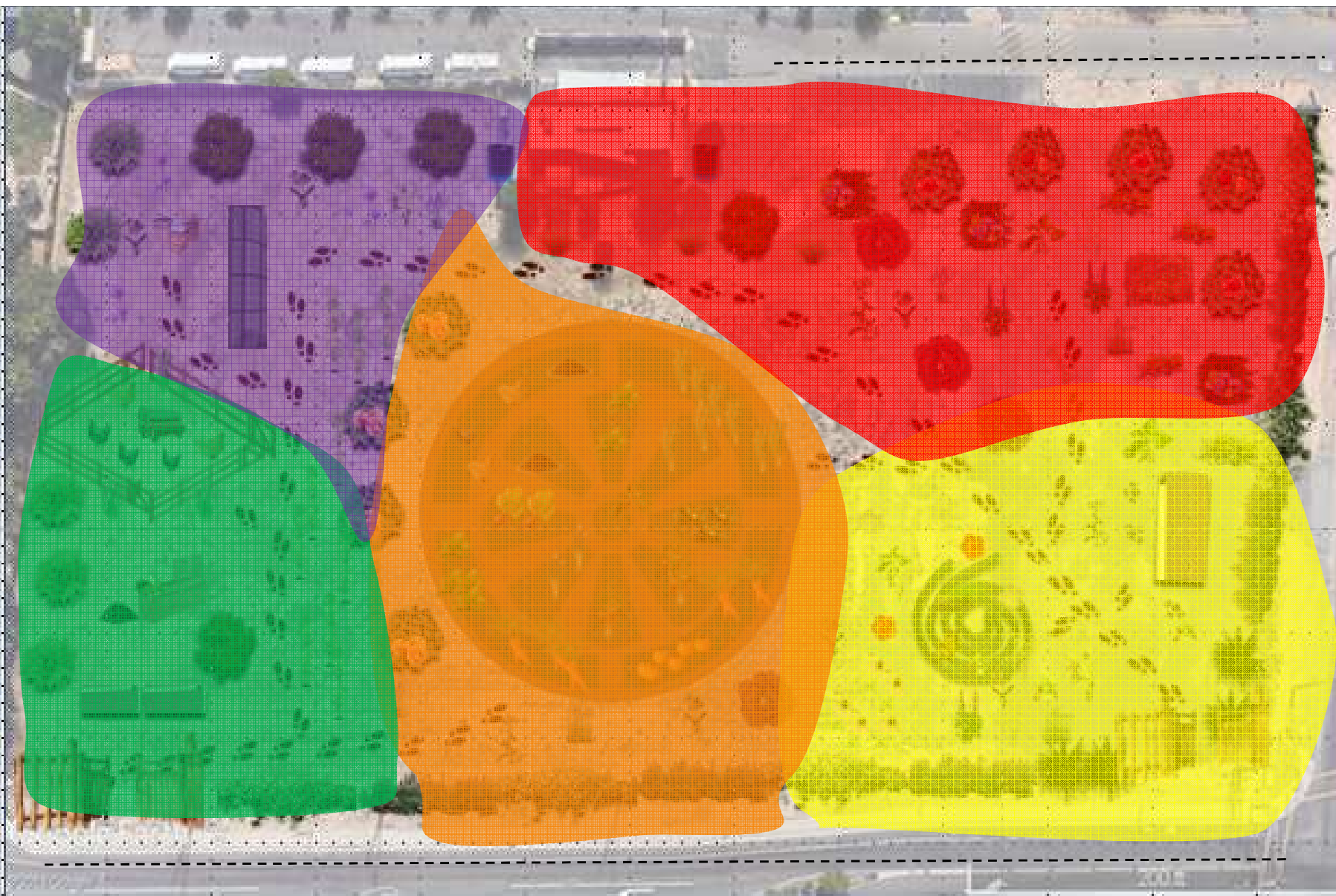
*Final Design: Water*

Scale: 0 50 100  
Scale 1" = 100'

**OSU PERMACULTURE DESIGN COURSE**

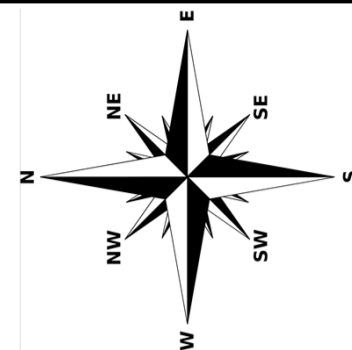
Date: 3/18/2019





## Key

	Zone 1 – Interaction
	Zone 2 – Production
	Zone 3 – Education
	Zone 4 Regeneration
	Zone 5 – Propagation
	Walking path
	Biking / Driving path
	Gate



Rosemont Urban  
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*Final Design - New Zones and Pathways*

Scale: 0 50 100  
Scale 1" = 100'

**OSU PERMACULTURE DESIGN COURSE**

Date: 3/18/2019





Key:  
See following slides for  
complete plant key.

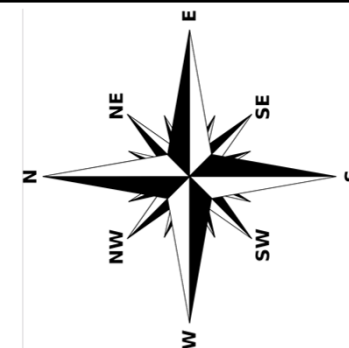
Rosemont Urban  
Agriculture Project

## *Final Design: Vegetation*

Scale: 0 50 100  
Scale 1" = 100'

OSU PERMACULTURE DESIGN COURSE

Date: 3/18/2019

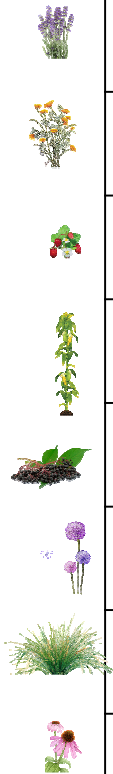




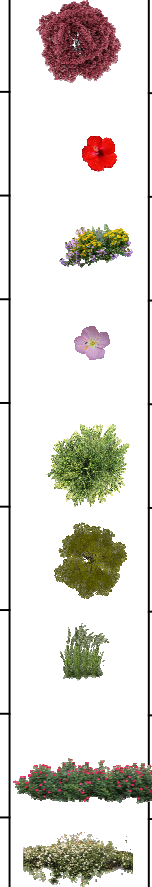
# Final Design - Plant Key



Common name	Botanical name
Stella Cherry	<i>Prunus ovatum</i> 'Stella'
Arctic Supreme White Peach	<i>Prunus persica</i> 'Arctic White'
Black Jack Fig	<i>Ficus carica</i> 'Black Jack'
Misty Southern Highbush Blueberry	<i>Vaccinium corymbusum</i> 'Misty'
Silver Lupine	<i>Lupinus albifrons</i>
Common Yarrow	<i>Achillea millefolium</i>
Common Nettle	<i>Urtica dioica</i>
Showy Milkweed	<i>Asclepias speciosa</i>
Comfrey	<i>Symphytum officinale</i>



Common name	Botanical name
Lavender	<i>Lavandula spp.</i>
California Poppy	<i>Eschscholzia californica</i>
Wild Strawberry	<i>Fragaria vesca</i>
Corn	<i>Maize</i>
Elderberry	<i>Sambucus spp.</i>
Dandelion	<i>Taraxacum spp.</i>
Lomandra	<i>Lomandra longifolia</i>
Purple coneflower	<i>Echinacea purpurea</i>



Common name	Botanical name
Santa Rosa Plum	<i>Prunus salicina</i> 'Santa Rosa'
Rose Mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>
Goldenrod	<i>Solidago spp.</i>
Evening Primrose	<i>Oenothera speciosa</i>
Tulip poplar	<i>Liriodendron tulipifera</i>
Oregon Ash	<i>Fraxinus latifolia</i>
Deergrass	<i>Muhlenbergia rigens</i>
Clematis	<i>Clematis spp.</i>
Jasmine	<i>Jasminum spp.</i>

## Final Design - Plant Key (cont.)



Common name	Botanical name
Tomatoes	<i>Solanum lycopersicum</i>
Rosemary	<i>Rosmarinus officinalis</i>
Carrots	<i>Daucus carota</i>
Basil	<i>Ocimum basilicum</i>
Chives	<i>Allium schoenoprasum</i>
Pumpkin	<i>Cucurbito pepo</i>
Various other vegetables, herbs, groundcovers	<i>Not listed</i>



# *Final Design 5 Permaculture Principles*

## *Obtain a yield*

One of the primary goals of the site is production. Cultivation of fruit, vegetables, honey, and eggs are incorporated into the design.

## *Produce no waste*

Composting and food harvesting are designed so that no excess produce goes into landfill. A food harvesting donation station will allow neighboring residents to drop off excess produce where it will be distributed or composted and returned to the soil as mulch.

## *Design from pattern to details*

The center of the site is a mandala-style garden, with rotating crops. The circular design allows for ease of access and increases growing space.

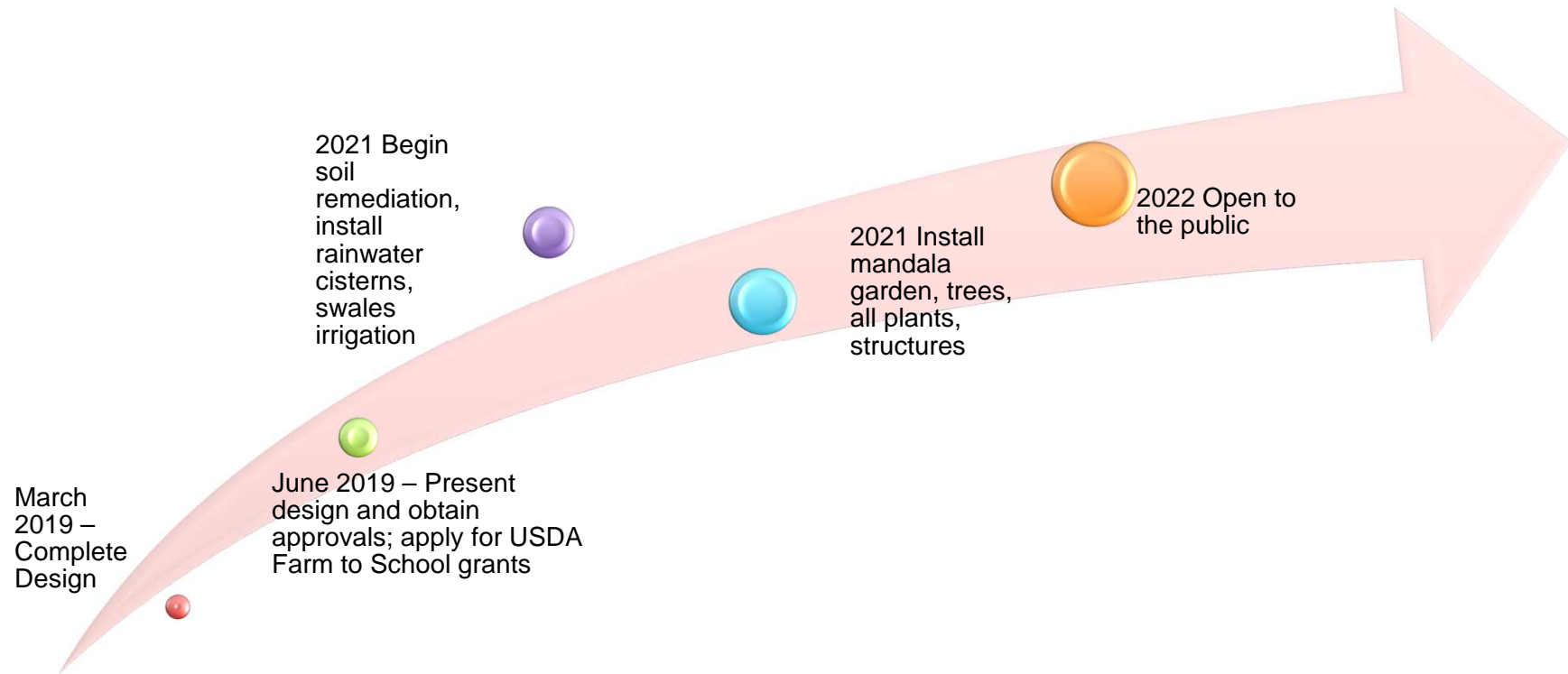
## *Integrate rather than segregate*

The Zones are designed so that there is a mix of nitrogen-fixers, composters, pollinator/insect friendly plants and dynamic accumulators.

## *Use & value diversity*

In addition to diversity of plant species, a major goal is to celebrate the diversity of the Rosemont community. All are welcome to explore, enjoy, and contribute.

## *Final Design Timeline*



## *Social Permaculture Reflections*

Rosemont has a strong community, that is diverse and supportive. However, the community has been lacking a central meeting place where people can share, learn, and interact. I think a permaculture-based urban agriculture site would offer a place for kids to learn and engage, and for anyone who is a farmer at heart to come out and enjoy. Despite the diversity of the community, there is still a suburban way of life that has a grip on people in the neighborhood. I want to challenge people's ideas about what our community is capable of.

I lived a block away from this site back when I was in high school in the 1980s. Just one block over to the west from my design site, there was another vacant lot attached to some run-down apartments. A thriving Hmong community lived in the apartments and turned the lot into a thriving urban farm. I always think back to that farm when I look at what is possible for this site.

This course challenged me to see beyond the grid. I can't wait to learn more and put my designs into practice.